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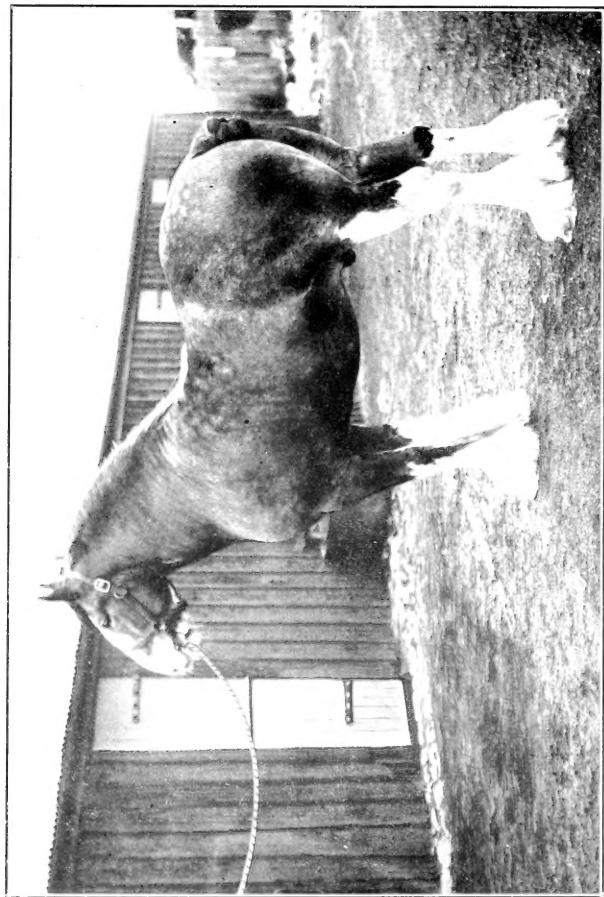
ANNUAL REPORT
OF THE
DEPARTMENT OF AGRICULTURE
OF THE
PROVINCE of ALBERTA
1919

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY



EDMONTON:
PRINTED BY J. W. JEFFERY, KING'S PRINTER
1920





CRAIGIE MASTERPIECE (1827). IMPORTED BY THE ALBERTA DEPARTMENT OF AGRICULTURE FOR
THE IMPROVEMENT OF DRAFT HORSE BREEDING IN THE PROVINCE.

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DEPARTMENT OF AGRICULTURE,

EDMONTON, DECEMBER 31ST, 1919.

TO HIS HONOUR

ROBERT GEORGE BRETT,

Lieutenant Governor of the Province of Alberta.

SIR,—

I have the honour to submit herewith the Report of the Department of Agriculture for the year 1919.

I have the honour to be, Sir,

Your obedient servant,

DUNCAN MARSHALL,

Minister of Agriculture.

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Report of the Superintendent of Agricultural Schools.

Report of the Director of Demonstration Farms.

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Report of the Superintendent of Women's Institutes.

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Report of the Recorder of Brands.

Report of the Chief Game and Fire Guardian.

Report of the Natural History Society.

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Appendix to Report of Superintendent of Fairs and Institutes.

DEPARTMENT OF AGRICULTURE

Heads of Branches.

- S. G. Carlyle, Live Stock Commissioner.
- C. P. Marker, Dairy Commissioner.
- P. R. Talbot, V. S., Provincial Veterinarian.
- J. D. Smith, Supt. of Seed and Weed Branch.
- J. H. Hare, Supt. of Poultry Branch.
- A. E. Meyer, Supt. of Agricultural Schools and Demonstration Farms.
- D. Douglas, Director of Demonstration Farms.
- Alex. Galbraith, Supt. of Fairs and Institutes.
- Miss M. MacIsaac, Supt. Women's Institutes.
- B. Lawton, Chief Game and Fire Guardian.
- J. Wilson, Brand Recorder.
- J. McCaig, Publicity Commissioner and Editor of Publications.

REPORT OF THE DEPUTY MINISTER

HON. DUNCAN MARSHALL,

Minister of Agriculture,

Edmonton.

SIR.—I have the honour to submit herewith the annual report of the Department of Agriculture. It includes a summary of agricultural conditions in the province, as well as reports from the heads of the various administrative branches outlining their work for the year.

From an agricultural standpoint, the year 1919 will be remembered as an "off" year. The winter was particularly mild, with the result that stock generally came through in good condition. The spring opened early and there was sufficient moisture in the soil generally speaking to make the land easily worked. The seed was sown under the most favourable conditions, the grain germinated well and the young crop made a rapid growth for a short time. Heavy winds were prevalent throughout the late spring and the small supply of moisture near the surface was speedily dissipated. An extremely dry summer combined to give the growing crop, especially throughout the south, a very severe set-back. In practically every previous season the province has been favored at some time with a heavy down-pour of rain often reaching eight or ten inches during the growing season. During the past season no portion of the southern half of the province was favored with sufficient moisture at any time to thoroughly soak the ground. Many districts throughout the centre and north were favored by heavy local showers and in the Peace River country these were sufficiently frequent to meet the requirements. In such areas good crops were harvested. Practically no frost came until the tenth of September, giving plenty of time for the crops which were sown reasonably early to ripen. The central and northern portions of the province received a good deal of moisture in late August and September and to some extent in the south, with the result that the crops commenced or were kept growing very late in the season. Many of these crops produced surprisingly heavy yields. Without question, these late grown crops furnished a very large supply of feed for live stock but did not come early enough to add much grain to the crop in Southern Alberta.

It became evident in the early summer that the southern part of the province would be very short of feed to carry the live stock on hand. Pastures became short and the hay crop was practically a failure. The southern stockmen immediately began to look elsewhere for feed, many of them going to Northern Alberta and Northern Saskatchewan. This Department took the matter up with the Dominion Government and the railways and was represented at a conference of these bodies in Winnipeg. Arrangements were made for free freight on live stock being shipped from the dry areas to Central and Northern Alberta for free freight on hay-making equipment to areas where there was feed, for the free return of both stock and hay-making equipment and also for free freight on hay, straw and green oat sheaves from the north to the dried out areas. Arrangements were made whereby the expense of this freight would be

borne by the Dominion Government, the Provincial Government, the Canadian Pacific Railway, the Grand Trunk Railway and the Canadian National Railway. The Department also sent out men to locate feed in the northern area and communicated this information to the stockmen in the south. A very large amount of hay was put up. Unfortunately the winter set in particularly early, preventing a number of men from finishing the work of stacking and setting back the work of baling. An early snowstorm in October also prevented a number of farmers from threshing. Most of the area producing wheat, however, was threshed before the storm and those who were unable to thresh their oats found a good market for the sheaves in the southern part of the province. Arrangements were made whereby these sheaves could be shipped loose in cars and this was undoubtedly an advantage to both the purchaser and the seller. On account of the early winter and the shortage of feed, many farmers have been induced to sell a large portion of their live stock. The market for beef and stocker cattle has been fairly brisk so that in most cases men received fairly good prices for what they had to sell.

On account of continued dry seasons in the extreme south and the south-east of the province and consequent crop failures, some of the farmers found themselves without the necessities of life as the winter approached and also without credit to purchase the same. Upon investigation it was decided to extend relief to these people in the form of groceries and coal and also feed for a few milk cows and work horses. Offices were established in Lethbridge, Medicine Hat and Youngstown from which centres agents of the Department work in distributing this relief. Security is taken in each case in the form of a promissory note or mortgage. At the time of writing, practically all needy families have been looked after.

The reports of the heads of the various branches will give in detail the work which has been carried on by the Department.

On account of rather adverse conditions throughout the season, it has not been possible for the Department to do very much constructive work. The time of many of the officials has been taken up with the questions of feed and relief.

It is to be noted that the business of dairying has increased during the year in spite of high prices for grain and labor and the shortage of feed. Statistics go to show a larger production of butter and cheese than in any previous year. The increase in dairy products is no doubt due to the larger use of cows for milk instead of simply to suckle calves. The increase in production of dairy wealth even in an unfavorable year shows the importance and value of the milk cow to carry over the farmer's family in the absence of more ambitious sources of revenue.

The poultry industry shows a slight falling off which is perhaps due to the high price of grain used for poultry feed. Renewed interest has been evident amongst poultry-keepers during the latter part of the season owing principally to an advance in the price of both eggs and dressed poultry and there is every reason to believe that flocks will be much increased during the coming spring and that the industry will soon resume its normal condition.

The live stock situation has been generally subject to rather varied fluctuation during the year. Besides the shifting of breeding stock north-

ward and a consequent lowering of prices compared with the previous four years, the best prices for butcher cattle were three or four cents lower than before, hogs dropped five cents and sheep and lambs not so much as either cattle or hogs. Horses were a drug on the market; light cars have been steadily discounting the light-legged stock of the country, tractors to the number of nearly six thousand have divided up the heavy work with the heavier horses and have affected the demand for heavy horses temporarily, and in a time of feed scarcity, horses are always reduced before the more profitable breeding stock such as cattle and sheep. There has been a sudden and general shrink in swine husbandry due to the low price of hogs and the high price of grain required to finish hogs. Sheep have not decreased in number. Pure-bred stock on the other hand has not suffered in the same way as commercial stock. The thinning process has given better standing to the more valuable sorts as better returns for feed are secured for this class of stock. Both bulls and females of pure-bred beef cattle have continued to sell well. The supply is not really up to demand and there is a likelihood of a continuance of this demand over a period of years.

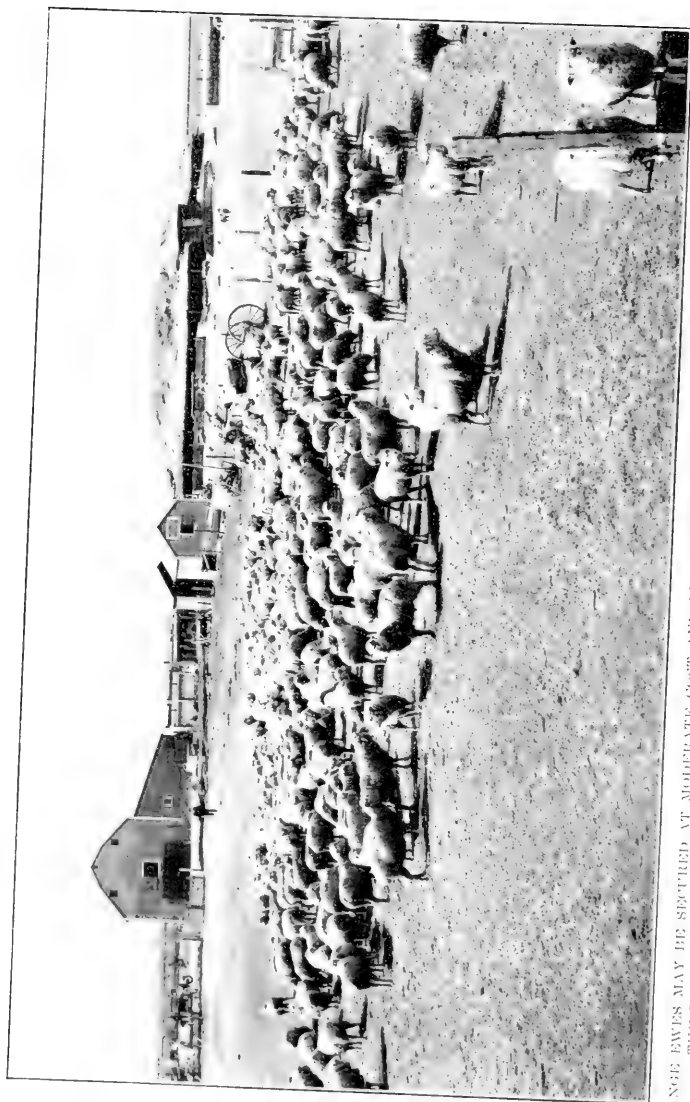
During the year, Mr. W. F. Stevens, Live Stock Commissioner, was appointed to represent the Department in the Peace River Country in giving assistance to farmers. Mr. S. G. Carlyle was appointed to the position of Live Stock Commissioner. Mr. D. Douglas was made Superintendent of Demonstration Farms. The Demonstration Farms on which Agricultural Schools were situated have been attached in management to the schools. Mr. E. S. Hopkins, formerly science instructor at Vermilion, has been given the work of experiment and investigation of soils at the Agricultural Schools. Mr. C. S. Hotchkiss resigned from the office of Publicity Commissioner at the close of 1918. Mr. J. McCaig now fills the position as well as that of Editor of Agricultural Publications.

At the beginning of the year the Public Health Branch was created a Department of Government under a Minister of Health and is no longer associated with agriculture.

Respectfully submitted,

H. A. CRAIG,

Deputy Minister.



RANGE EWES MAY BE SELECTED AT MODERATE COST AND BY THE USE OF GOOD-SIZED RAMS OF GOOD CONFORMATION OF THE HAMPSHIRE, OXFORD OR SHROPSHIRE BREEDS, A GOOD COMMERCIAL FARM FLOCK MAY BE BUILT UP.

REPORT OF THE LIVE STOCK COMMISSIONER

SIR.—I have the honor to submit herewith the report of the Live Stock Commissioner's Branch for the year 1919.

The condition of the various classes of stock in the Province cannot be said to be very satisfactory. Owing to the continued drought which has now extended over a period of three years in the southern part of the Province, the pasture and feed situation has become serious. In the latter part of July and the first part of August, ranchers and farmers in the drought area became somewhat panicky and began selling off their cattle. Buyers were not slow to take advantage of this and a considerable number were disposed of at various points at rather low prices. As soon as this information was received by the Department an investigation was made and notices were sent to provincial weeklies advising farmers not to sacrifice their stock but to ship to the Calgary and Edmonton Stockyards and an endeavor would be made to have buyers from the districts in the Province where feed was plentiful, and especially from the northern parts of the Province, to purchase these cattle.

All the Associations that had applied for loans under The Live Stock Encouragement Act were notified that large numbers of good cattle were for sale at these stockyards and as high as 359 head were bought in one week at the Edmonton Stockyards under this Act. An effort was made to keep all of the good young breeding stock in the Province, and the Peace River country received a large number of these cows and heifers that were shipped from the ranchers in the south. In addition to the farmers and settlers increasing their livestock holdings, several ranching enterprises were established in the north, the largest perhaps being the Kleskum Ranch Ltd., in the Grande Prairie district, to which 900 head of breeding stock were shipped during the past season.

While Manitoba and Saskatchewan secured a considerable number of Alberta cattle, a large number of stockers and feeders were shipped across the line, principally to the South St. Paul Yards and were there purchased by United States farmers. Alberta stockers have proven very profitable feeders for these farmers and a good industry is being built up. The importance of this market should be impressed on the breeders of this Province and every means taken to hold it. As the American authorities are very suspicious of disease, every precaution should be taken to control the spreading of any disease that may happen to break out, and any disease that already exists in the Province should be speedily cleaned up.

In helping borrowers to secure stock under The Live Stock Encouragement Act it was thought good policy to advise the purchasers to buy practically all young stock, and as there was a splendid lot of well bred yearlings and two-year-olds from the drought area offered at the Calgary and Edmonton stockyards these farmers availed themselves of the opportunity. These choice young cattle instead of going to the packing plant are now forming the nuclei of herds all over the northern part of the Province. The next page shows a statement of the year's business.

STATEMENT TO DECEMBER 31ST, 1919.

INTEREST.

Total amount of interest due in 1919	\$56,890.83
Total amount of interest received by Merchants Bank of Canada for 1919	26,924.30
Total amount of interest received by office	18,008.26
	<hr/> \$44,932.56
Total amount of interest in arrears December 31st, 1919	\$18,162.35

LOANS GUARANTEED.

Total number of Loans Guaranteed	215
Total amount of Loans Guaranteed 1919	\$499,163.00
Less unexpended balances	30,350.38
Total amount of money used	<hr/> \$468,812.62

CATTLE PURCHASED.

Total number of cattle purchased	8,831
Calves at foot	798
	<hr/> 9,629
Average price per head	\$53.00

There has been a strong demand for pure-bred cattle of high quality and in good condition and several animals have changed hands at a high figure, especially one Shorthorn bull calf which went to head a herd in Ontario at \$5,000.00. The bull sales held in the Province were very successful and the prices realized were satisfactory, but prices would be much better if the animals offered were in better condition. Below is the number of bulls sold and the prices obtained at the Edmonton, Calgary and Lacombe Sales:

EDMONTON BULL SALE.

	No. Entered.	No. Sold.	Amount.	Average.
Aberdeen Angus	53	44	\$ 7,170.00	\$162.95
Ayrshire	3	1	75.00	75.00
Brown Swiss	..	..	..	..
Guernsey	..	..	..	..
Hereford	43	34	7,015.00	206.33
Holstein	6	3	240.00	80.00
Jersey	3	..	..	..
Shorthorn	160	125	26,175.00	209.40
Red Polled	1	1	160.00	160.00
	269	208	\$40,835.00	\$196.32

CALGARY BULL SALE

Galloways	5	\$ 750.00	\$150.00
Herefords	220	54,635.00	248.34
Shorthorns	320	73,535.00	223.51
Aberdeen-Angus	98	17,950.00	183.16
	652	\$116,870.00	\$225.26

TOP PRICES.

Herefords—Frank Collicutt, Calgary, sold Willow Spring Ford, 31570, to T. F. Cadzow, Edmonton, for \$1,600.00.
 Shorthorns—T. B. Ralphs, Calgary, sold Kimmel Captain, 116157, to Davidson Bros., Red Willow, \$3,800.00.
 Aberdeen Angus—A. E. Noad of Olds, sold Donald of Hartburn, 16788, to R. R. Lee, Coaldale, for \$750.00.

LACOMBE BULL SALE.

	No. Entered.	No. Sold.	Amount.	Average.
Herefords	59	\$12,900.00	\$218.64
Red Poll	1	125.00	125.00
Shorthorns	55	13,155.00	239.18
Aberdeen-Angus	12	2,805.00	233.75
		127	\$28,985.00	\$228.22

TOP PRICES.

Herefords—P. M. Ballantine, Lacombe, sold Willow Spring Atkins, 29450, to Francis F. Reeve, Freshfield, for \$625.00.
 Angus J. H. Morison and Sons, Bentley, sold Alva Alamo, 16105, to Frank R. Wells, Bashaw, for \$320.00.
 Shorthorns—R. F. Woelk, Carstairs, sold Lavender, 124989, to J. H. McArthur, Knee Hill Valley, for \$450.00.

HORSES.

There has not been much improvement in the horse market this past year. Horses weighing over 1600 lbs., sound and of good quality, bring good prices, but the horses of medium weight have been fairly cheap and the light 900 to 1100 lbs. horses, of which there is an over-supply in Alberta, have been hard to dispose of at any price. An effort has been made by P. Burns & Company to have this surplus disposed of as food in European markets and it is to be hoped that a good market will be found. This will be a profitable way of disposing of this class of stock which uses up the feed that could be utilized to much better advantage by other kinds of stock.

Owing to the war and the effects of the war very few Clydesdale Stallions have been imported recently and the Province is feeling the effect of the lack of these sires. Quite a large number of good Percheron Stallions have been brought in from the United States but the demand has not been strong. All the breeders, however, are optimistic as to the future. When reconstruction gets well under way and immigration starts there is certain to be a good demand. Alberta has demonstrated that as good horses can be raised here as any place on the continent. The Bar U Ranch has made a second large shipment of over 50 head of pure-bred Percherons to England which were sold at satisfactory prices.

SWINE.

Owing to the continued high price of grain, the unsatisfactory fluctuations in the price of pork and the crop failure in some sections of

the country, the raising of pigs has been seriously interfered with. It is estimated that only fifty per cent. as many hogs were marketed in 1919 as in 1918.

Pigs have proved one of the most profitable farm animals on Alberta farms in the past and the farmers are advised, notwithstanding the scarcity and high price of grain, to keep two or three at least of their best brood sows. If the Province gets only an average crop in 1920 there is sure to be a strong demand for breeding stock. It is unfortunate that the price of hogs dropped just when the farmers were ready to market hogs this fall as it had a tendency to make them dissatisfied and go out of the business. Pigs are one class of stock that the farmer can get into quickly once the conditions of feed and markets are favorable.

Breeders have been realizing satisfactory prices for young stock by private sale, but at the Calgary and Edmonton Sales the prices were somewhat disappointing. It would seem that the breeders had sold most of their stock before the sales took place and the sale was used as a clearing house for the surplus stock. This was discussed at the annual meeting of the Provincial Swine Breeders' Association held in Calgary in December and a number of the best breeders agreed in 1920 to keep their choicest offerings for these sales. Below find result of the Edmonton and Calgary Swine Sales:

EDMONTON SWINE SALE.

	No.	Amount.	Average.
Berkshire females	16	\$ 518.00	\$32.37
Berkshire males	12	407.00	33.91
Duroc Jersey females			
Duroc Jersey males	2	81.00	40.50
Yorkshire females	9	269.00	29.88
Yorkshire males	2	95.00	47.50
	41	\$1,370.00	\$31.48 Females \$36.44 Males

CALGARY SWINE SALE.

	No.	Amount.	Average.
Yorkshire females	5	\$ 202.00	\$40.40
Yorkshire males	1	75.00	75.00
Berkshire males	6	255.00	42.50
	12	\$ 532.00	\$44.33

SHEEP.

Sheep have proved to be very profitable on Alberta farms from both a wool and mutton standpoint. Owing to their ability to consume and utilize every kind of fodder and weeds grown on the farm their numbers are increasing very fast. There are probably now in the Province well over 100,000 head but this should be doubled in the next few years. The profits from both wool and mutton are likely to be as high as the returns from any other kind of farm live stock or other product.

There has been a strong demand for breeding stock of both grades and pure-breeds and many new flocks are being established. The farmers of the north are anxious to secure small bunches for the foundation of

future flocks. The large sheep owners of the south have fared better than owners of other classes of stock owing, no doubt, to sheep being able to graze closer. The sheep outlook all over the province is very encouraging.

At the Calgary and Edmonton Ram Sales the prices for good stock were satisfactory but there were too many inferior animals to build up a strong sale. Breeders need not fear to bring out their best rams as the bidding is always spirited when any high quality stock is offered. Below is the result of the Sales held at Edmonton and Calgary:

EDMONTON SALE.

	No.	Amount.	Average.
Hampshire ewes			
Hampshire rams	3	\$ 195.00	\$65.00
Oxford ewes	12	403.00	33.58
Oxford rams	33	1,510.00	45.75
Shropshire ewes	27	627.00	23.22
Shropshire rams	17	588.00	34.62
Suffolk ewes			
Suffolk rams	4	105.00	26.26
	96	\$3,428.00	\$26.41 Females \$42.08 Males

CALGARY SALE.

	No.	Amount.	Average.
Shropshire ewes	43	\$ 810.00	\$18.84
Shropshire rams	109	2,237.50	20.53
Suffolk ewes	4	74.00	18.50
Suffolk rams	11	183.00	16.64
Oxford rams	38	1,029.50	27.09
Persian rams	6	129.00	21.50
Grade ewes	133	1,753.00	13.18
	344	\$6,216.00	\$18.07



THE SPARSINESS OF SETTLEMENT IN PEACE RIVER LEAVES FINE OPEN STRETCHES OF FEED AND GOOD
SHELTER AND WATER FOR SETTLERS' STOCK.

REPORT OF THE DAIRY COMMISSIONER

SIR.—I have the honour to submit herewith the report of the Dairy Commissioner's Branch for the year ending December 31st, 1919, under the following heads:

- I.—General.
- II.—Creameries and Cheese Factories.
- III.—Marketing of Creamery Butter.
- IV.—The Department's Butter-grading Service.
- V.—Instruction Work.

I. GENERAL.

In submitting this Annual Report it is a pleasure to be able to say that the Dairy Industry in the Province continues in its steady progress from year to year. A substantial increase has been reported in the number of dairy cows, and the total value of the dairy products of Alberta is estimated at \$31,625,000 for the year. The production of creamery butter reported by the 53 creameries for 1919 amounted to 11,822,890 pounds, an increase of slightly more than 30 per cent., and the selling price at the creameries was \$6,132,739 or an average of 51.87 cents per pound. The 10 cheese factories that operated during the year had an output of 511,515 pounds and the selling price at the factories was \$143,366, an average of 27.86 cents per pound. The cheese output showed a reduction of practically 7 per cent.

The steady increase in production is undoubtedly due to the favourable market conditions during the past few years. There has been a brisk demand for all classes of dairy products and at steadily increasing prices. Another important reason for this development must be noted here, namely, the general and favourable attitude of the farmers towards the dairy business. There seems to be a greater feeling of confidence in the stability of the business than there has been in the past, more particularly now that the business is assuming larger proportions.

In the matter of the disposal of creamery butter, this product found its way last year into wider markets than ever before. While the great bulk of the butter was disposed of to Canadian buyers fairly large quantities were shipped into United States markets, both east and west, and also to European countries. So far as we know the product has given general satisfaction to the trade. New avenues having thus been opened up for the disposal of the annually increasing surplus of creamery butter it is satisfactory to note that, on the whole, the type of butter which is now being manufactured in this province is satisfactory to the various markets that are available to us.

I have referred in the foregoing particularly to the creamery butter trade because the surplus dairy products of Alberta will go on the market in that form for some time. The creamery operators, realizing this, have rendered the dairy industry an important service in that they have

equipped themselves to manufacture a standard product with good keeping quantities, one that the people in the trade can handle with confidence and satisfaction.

EXAMINATIONS OF GRADERS AND TESTERS.

The new regulations made under The Dairymen's Act provide that the Dairy Commissioner shall arrange for the examination of applicants for milk and cream testers and graders' licenses and that the applicants shall furnish satisfactory proof of being competent to operate the Babcock Test and to grade and classify milk and cream according to the Grade Standards and descriptions established under the provisions of the Act, before they may be granted a license to operate.

This provision involved the examination of four hundred and twenty-four applicants during the year, by the Department's examiners. The majority of the candidates were recommended for license, some for permit pending a further examination, while others did not qualify.

It was, of course, to be expected that the rapid increase in the establishment of cream stations throughout the principal dairy sections of the Province, made a demand for a greater number of local operatives than had been previously trained to undertake that work. The large central creameries which operated the stations put several men into the field to give preliminary instruction to the local agents in order that they might be enabled to comply with the requirements of the Act.

The Department's dairy inspectors also gave special instruction at each place where examinations were held, as well as individual help to the men in charge of the cream stations at the time of their inspection visits.

THE ISSUE OF LICENSES.

Fifty-eight licenses in Form "C" were issued to operators of creameries and cheese factories and two hundred and sixty-six licenses were issued to operators of cream stations.

At the close of the year three hundred and twenty-five licenses had been issued in Forms "A" and "B" to testers and graders of cream and one hundred and fifty persons had been working under permit, pending the prescribed examination or re-examination.

In order to facilitate the business for the creamery and cream station operators during the early part of the season the Department offered to grant permits to applicants for testers and graders' licenses, upon the written recommendation of men to whom licenses had been issued and upon their signed statement to the effect that the applicants were competent.

II. CREAMERIES AND CHEESE FACTORIES.

There were five cheese factories, five combined cheese factories and creameries and 18 creameries in operation in the province during the year 1919. The following list gives particulars as to location and ownership.

Cheese Factories

<i>Name of Factory</i>	<i>P. O. Address</i>	<i>Proprietor or Manager</i>
Mountain View Cheese Factory	Mountain View	S. W. Low, Mgr., Cardston.
Legal Cheese Factory	Legal	A. Carriere, Secretary.
Crystal Dairy	Didsbury	The Crystal Dairy, Ltd., Calgary.
Olds Central Cheese Factory	Olds	The Central Creameries, Ltd., Calgary.
Wild Rose Cheese Factory	Ponoka	The Edmonton City Dairy, Ltd., Edmonton.

Combined Creameries and Cheese Factories.

Woodland Dairy, Ltd.	Edmonton	The Woodland Dairy, Ltd., Edmonton.
Edmonton City Dairy	Edmonton	The Edmonton City Dairy, Ltd., Edmonton.
Wetaskiwin Creamery	Wetaskiwin	The Edmonton City Dairy, Ltd., Edmonton.
Olds Co-operative Creamery	Olds	The Olds Co-operative Creamery Association.
Red Deer Dairy Products	Red Deer	The Red Deer Dairy Products, Ltd., Red Deer.
Meadow Creamery	Alix	The Meadow Creamery Co., Ltd.
Bentley Creamery	Bentley	Kenneth Kerr.
White Swan Creamery	Bowden	The Red Deer Dairy Products, Ltd., Red Deer.
Pine Lake Creamery	Pine Lake	The Red Deer Dairy Products, Ltd., Red Deer.
Prairie Lily Creamery	Calgary	Campbell & Griffin, Ltd.
P. Burns & Co., Creamery	Calgary	P. Burns & Co., Ltd.
Calgary Central Creamery	Calgary	The Central Creameries, Ltd.
Camrose Central Creamery	Camrose	The Central Creameries, Ltd., Calgary.
Eckville Central Creamery	Eckville	The Central Creameries, Ltd., Calgary.
Cardston Creamery	Cardston	The Cardston Creamery Association.
Chief Mountain Creamery	Cardston	The Chief Mountain Creamery Co., Ltd.
Carmangay Creamery	Carmangay	C. H. Messenger.
Clareholm Creamery	Clareholm	The Clareholm Creamery Association.
Cochrane Creamery	Cochrane	The Cochrane Creamery Ass'n.
Coronation Creamery	Coronation	A. E. Kofoed.
Twin Spruce Creamery	Elkton	A. R. Kendrick, Didsbury.
Drumheller Creamery	Drumheller	P. M. Sobat.
Daysland Creamery	Daysland	The Edmonton City Dairy, Ltd., Edmonton.
Delburne Creamery	Delburne	The Edmonton City Dairy, Ltd., Edmonton.
Ferintosh Creamery	Ferintosh	The Edmonton City Dairy, Ltd., Edmonton.
Grande Prairie Creamery	Grande Prairie	The Edmonton City Dairy, Ltd., Edmonton.
Riviere Qui Barre Creamery	Riviere Qui Barre	The Edmonton City Dairy, Ltd., Edmonton.
Stettler Creamery	Stettler	The Edmonton City Dairy, Ltd., Edmonton.

<i>Name of Factory</i>	<i>P. O. Address</i>	<i>Proprietor or Manager</i>
Vermilion Creamery	Vermilion	The Edmonton City Dairy, Ltd., Edmonton.
Enterprise Creamery	Edmonton	The Enterprise Dairy, Ltd.
Brookfield Creamery	Edmonton	The Swift Canadian Co., Ltd. (Creamery Department)
Northern Creamery	Edmonton	The Northern Creameries, Ltd.
P. Burns & Co. Creamery	Edmonton	P. Burns & Co., Ltd.
Hanna Creamery	Hanna	L. W. Kofoed.
Lacombe Creamery	Lacombe	The Dan Morkeberg Creamery Co., Ltd., Markerville.
Innisfail Creamery	Innisfail	The Dan Morkeberg Creamery Co., Ltd., Markerville.
Markerville Creamery	Markerville	The Dan Morkeberg Creamery Co., Ltd., Markerville.
Elnora Creamery	Elnora	The Dan Morkeberg Creamery Co., Ltd., Markerville.
Red Deer Creamery	Red Deer	The Dan Morkeberg Creamery Co., Ltd., Markerville.
Crystal Dairy	Lethbridge	The Crystal Dairy, Ltd.
Crystal Dairy	Medicine Hat	The Crystal Dairy, Ltd.
Magrath Creamery	Magrath	The Magrath Creamery Association.
O. K. Creamery	Morningside	The O. K. Creamery Co.
Blindman Valley Creamery	Rimbeey	A. M. Kerr.
Beaver Lake Farmers' Creamery	Ryley	The Beaver Lake Farmer's Creamery Association.
C. P. R. Dairy	Strathmore	The C. P. R. Demonstration Farm.
Knee Hill Creamery	Sunnyslope	Nelson & Barron.
St. Paul Creamery	St. Paul des Met.	Geo. E. Scott.
Tofield Creamery	Tofield	P. H. McIntosh.
Hartshorn Creamery	Hartshorn	The Hartshorn Co-operative Creamery Association, Ltd.
Viking Creamery	Viking	The Viking Co-operative Creamery Association.
Meadow Creamery	Wainwright	The Meadow Creamery Co., Ltd.
Water Lily Creamery	Sundre	The Water Lily Co-operative Creamery, Ltd.

New creameries were opened during the year by Messrs. P. Burns & Co., Ltd., at Calgary and at Edmonton. The Drumheller Creamery, Drumheller, and the Tofield Creamery, Tofield, were also put into operation. Three of the cheese factories and eight of the creameries that were operating in 1918 did not re-open.

III. MARKETING OF CREAMERY BUTTER.

The Department's Butter-marketing Service was continued during the year and a considerably larger quantity of butter was handled than during 1918. Tables I and II give a summary of the total business handled for both Winter and Summer Season and for the individual shippers.

TABLE I.
SUMMARY OF BUTTER SALES—WINTER SEASON 1918-19.

Creamery or Shipper	Pounds of Butter Sold	Selling Price at Calgary	Average Price per Pound Cents
The D. Morkberg Creamery Co. Limited:			
Elmora	7,488	\$ 3,792.72	50.65
Innisfail	1,450	703.12	48.49
Markerville	17,354	9,059.46	52.20
Lacombe	6,337	3,259.42	51.43
Viking Co-operative Creamery Association	17,429	8,746.85	50.18
Beaver Lake Farmers' Creamery Association	1,008	524.44	52.03
The Hanna Creamery, Hanna	8,099	3,973.16	49.06
A. E. Kofoed, Coronation	21,182	10,426.72	49.22
Totals and Average	80,347	\$40,485.89	50.39

TABLE II.
SUMMARY OF BUTTER SALES—SUMMER SEASON, 1919.

Creamery or Shipper	Pounds of Butter Sold	Selling Price at Calgary	Average Price per Pound Cents
The D. Morkberg Creamery Co. Limited:			
Elmora	51,539	\$27,352.28	53.07
Innisfail	30,143	16,425.99	54.49
Markerville	86,464	46,726.86	54.04
Red Deer	59,062	31,320.81	53.03
Lacombe	61,040	32,812.05	53.75
Meadow Creamery Co., Ltd., Alix	6,888	3,695.72	53.65
Viking Co-operative Creamery Association	127,426	67,943.06	53.32
Central Creameries, Ltd., Calgary	58,700	33,204.73	56.57
Beaver Lake Farmers' Co-operative Creamery Association, Ryley	50,064	26,515.83	52.96
Hanna Creamery	114,240	60,998.62	53.40
A. E. Kofoed, Coronation	213,791	112,788.51	52.76
Water Lily Co-operative Creamery Ltd., Sundre	6,766	3,659.06	54.08
Totals and Average	866,123	\$463,443.52	53.51

THE UPWARD MOVEMENT OF PRICES.

The annexed table is compiled upon the basis of the average selling price of butter handled through the Department's Butter-marketing Service for the summer season of each of the past six years. About ten per cent. of the total creamery butter output in the province has been

handled in this way. The figures in the second column of the table represent the selling price at Calgary and the several columns that follow show the percentage increase in the selling price from year to year.

In order to establish a basis for comparison the figures that are shown in brackets represent the average selling price of butter at all creameries in Alberta for each calendar year, as reported by the Dominion Statistician. When we consider that one set of figures cover a six-month period of each year and the other the full period the agreement is fairly close.

Summer Season	Cents per pound at Calgary	Annual increase shown on a percentage basis.				
		1914	1915	1916	1917	1918
1914	25.87	100.0				
1915	27.18 (26.795)	105.1	100.0 (100.0)			
1916	31.49 (30.736)	121.7	115.9 (114.7)	100.0 (100.0)		
1917	39.56 (38.176)	152.9	145.5 (142.5)	125.6 (124.2)	100.0 (100.0)	
1918	45.30 (44.469)	175.1	166.7 (166.0)	143.9 (144.7)	114.5 (116.5)	100.0 (100.0)
1919	53.51 (51.87)	206.8	196.8 (193.6)	169.9 (168.8)	135.3 (135.9)	118.1 (116.6)

The Trade Bulletin, a widely read weekly publication issued at Montreal, said a short time ago that the butter prices at the end of 1919 were higher than they have been since the days in ancient Egypt when Pharaoh's cattle were smitten with murrain and died.

The probability is, however, that the peak of high butter prices has been reached and that there will be a gradual decrease until the point be reached where under normal market conditions the law of supply and demand will once more equalize values of various commodities. The time is here when dairymen, producers as well as manufacturers, should begin to adjust themselves and their business to the new conditions. There is room for more efficiency in the fields occupied by each of the main branches of the dairy business. A small reduction in the cost of producing or manufacturing the dairy products is equivalent to a corresponding increase in the selling prices, a fact worth remembering.

IV. BUTTER-GRADING SERVICE.

The Department's Butter-grading Service was used by the creamery operators to a greater extent during 1919 than in any of the preceding years. Forty-four creameries had 9,802 churnings of butter graded during the year, representing a total production of 7,324,275 pounds. A large proportion of the grading packages passed through the grading stations at Calgary and Edmonton during the six summer months, May to October inclusive, and for the purpose of comparison the annexed table shows the figures for the past five summer seasons as to the number of creameries participating, the number of churnings graded and the quantity of butter that they represented. The table shows also the comparative quality of the butter for each season, expressed in percentages of each grade.

Summer Season	Cream-eries	Lots Graded	Representing in Pounds	Special Grade	First Grade	Second Grade	Off Grade	Total
1915	35	6,203	3,600,900	33.0	39.7	24.3	3.0	100.0
1916	35	5,953	4,214,312	43.9	41.7	12.9	1.5	100.0
1917	37	7,046	4,611,646	56.3	36.3	6.7	.7	100.0
1918	36	7,281	5,427,134	50.4	38.6	10.3	.5	100.0
1919	44	8,939	6,830,308	29.7	50.8	18.9	.6	100.0

It will be seen from the foregoing record that for the past season the percentage of "Special" grade butter was considerably lower than that of the three preceding seasons and that there had been a marked increase in the percentage of "Seconds." This temporary shifting of grades calls for a word of comment.

It may be stated as a general proposition that a falling off of the quality of the season's butter production was due primarily to a lower quality of cream, the finished product of the producer, but the raw material of the butter manufacturer and while it is true that the quality of cream for creamery butter-making is determined to a certain extent by climatic conditions and the available labor on the farm where it is produced it is equally true that the general market conditions is the greater determining factor. Market conditions are always reflected in the relative selling price of the various grades of butter in the open market. During the years in which the quality of our creamery butter output was improving from year to year the market supplied the spur of a fairly wide "spread" in the price of the different grades. During the season of 1919 this "spread" amounted to about $2\frac{1}{2}c.$ per pound between "Special" and "Seconds" as against $3\frac{1}{2}c.$ to $5c.$ per pound during the corresponding period of the previous years.

I have already reported that a number of alternative markets were available to our creamery operators during the past year owing to overseas export demand and some of these markets were able to handle under grade butter at figures ranging within $2c.$ to $2\frac{1}{2}c.$ per pound of the price that could be obtained at the same time for "Specials" in our old established markets in Western Canada.

It is but a question of a short time when the butter supply of the world's market will more nearly meet the demand and the normal price differentials for the different grades of butter will once more encourage quality production. The dairy business of the individual farmer occupies a place of relative importance in his scheme of operations, and when the financial returns seem to justify him in the expenditure of the time and providing of the facilities to produce a higher grade of cream, he will undoubtedly follow the voice of the market transmitted to him by the purchaser of his cream in the tangible form of dollars and cents. The relative values of the different grades of butter in the open market will naturally determine the relative price which the butter manufacturers can pay for butter-fat in the different grades of cream.

Again referring to the season's grading of butter it may be of interest to state that during the months of May and June, grade certificates were issued to cover 24.9 per cent. of the total butter graded during the season, for the months of July and August 51.7 per cent. of the total and for the months of September and October the remaining 26.4 per cent.

In classifying the creameries according to butter output we find that 33 of the creameries had up to 200 churnings of butter graded during the season, six creameries had up to 400 churnings, three creameries had up to 800 and two creameries had more than 800 churnings, the average quantity of butter in each churning being in the neighborhood of 750 pounds.

Before closing this section of my report I desire to commend very highly the excellent work done by Mr. J. R. Flan and Mr. H. S. Pearson as chief butter-graders at Calgary and Edmonton respectively. Other members of the staff who have at various times assisted the chief graders have also shown marked ability and a keen appreciation of the responsibility attached to that important work. The fact that the grading service has proved satisfactory to both buyer and seller seems to warrant the statement that the graders have done their work conscientiously and well.

V—INSTRUCTION WORK.

The instruction in dairy work at the Provincial Schools of Agriculture was again intrusted to officers of the Dairy Branch. Mr. H. S. Pearson, Dairy Instructor and Inspector, and also one of the official butter-graders, took charge of the dairy work at the Schools at Olds and Claresholm; he was assisted alternately by Mr. W. Hamilton and Mr. W. J. Beckett. Geo. W. Scott, Dairy Instructor and Inspector, conducted the instruction in dairying and poultry at the School at Vermilion, where he was assisted part of the time by Mr. J. Herbert Thompson.

Mention has already been made of the special instruction and examination of milk and cream testers and graders under the provisions of The Dairymen's Act. The Instructors spent considerable time coaching candidates who later came up for examination for tester's and grader's license.

As the dairy industry develops there will be considerable and constant demand for specialized instruction in the several branches of the manufacturing end of the business and I trust that provision may be made for materially increasing the staff of Instructors.

Respectfully submitted,

C. P. MARKER.

Dairy Commissioner.

REPORT OF THE PROVINCIAL VETERINARIAN

SIR.—I have the honour to submit the annual report of the Provincial Veterinarian's Branch of the Department of Agriculture for the year 1919.

The work of this branch is the same as for the year 1918. Owing to the Schools of Agriculture being closed during the school term of 1918 and 1919 no veterinary lectures were given at these institutions. The supervision of the health and care of the live stock on the various Demonstration farms still comes under this branch. On account of the unusually early winter the result has been a great scarcity of feed in various parts of the Province. Insufficient food, unwholesome and indigestible foods caused stocks to be peculiarly susceptible to many ailments and maladies which up to the present time were practically unknown, with the result that many demands were made for the services of this branch. With the exception of troubles brought about by lack of nutrition the health of the live stock has been exceptionally good.

Instruction in Veterinary Science.—Since the schools of Agriculture have started operation lectures to the students on the common ailments affecting farm animals have been given by Dr. McPherson of the stallion inspection staff, who from his wide experience relating to unsoundness, was particularly adapted for this important phase of the work. Students are taught how to examine sick animals to determine the presence of disease, and the proper procedure as to administering of medicines in cases of sickness. Students are also taught the essential features in the general care and treatment of sick animals, and in the case of injuries, barb wire cuts, etc., the best methods to promote healing. The work of Dr. McPherson made possible the spending of more time upon contagious diseases which are common to Alberta, and which heretofore have not received the attention to which they were entitled.

Lectures on Veterinary Science are given at the University. The work is similar to that given at the Agricultural schools but along more advanced lines. The instruction given was with the object of assisting graduates in the eradication and prevention of many diseases affecting the live stock in Alberta.

Demonstration Farms.—The supervision of the health and care of the live stock on these farms has required considerable attention. Frequent visits are necessary in order to prevent outbreaks of disease from occurring. On different farms there has been considerable trouble each fall and winter among the cattle from digestive derangements attributed to the feeding of ensilage. Unless fed with considerable caution certain mixtures seem to produce violent indigestion.

Miscellaneous.—Owing to the scarcity of veterinary surgeons in outlying districts this branch is frequently asked to render assistance to those people who are not in a position to secure expert advice as to the best means of combatting the various diseases that occur. This branch has endeavored to assist in every possible way the preservation of live

stock against any epidemics which occur. Meetings have also been held in various parts of the province to draw the attention of the stockman to the losses resulting from these outbreaks and to the best means of combatting and eradicating these diseases. The branch has been carrying on experimental work with abortion and sterility in cattle which, although, only in its initial stage has given very promising results.

Live Stock Diseases in Alberta.—This branch has found that the following diseases occur frequently throughout the province. By enumeration it is hoped to draw the attention of stockmen to them and thus prevent their occurrence to a great extent.

Blackleg.—This disease has been very prevalent the last few years, but due, no doubt, to an energetic campaign which has been carried on against it, it is being gradually exterminated. The use of the Blackleg Aggressin Vaccine as a preventive has given excellent results and the Agriculture Schools at Olds, Claresholm and Vermilion have sent out a large number of doses. A circular relating to blackleg, setting forth the cause, symptoms, the kind of vaccine and how to prevent outbreaks of blackleg was mailed to every post office in the province with the request that it be posted in a conspicuous place. Judging by the number of inquiries following the issuing of this poster it would seem that many more animals were vaccinated than ever before.

Weed Poisoning.—We have been giving the subject of weed poisoning considerable attention for some time. There is no doubt that losses in live stock from this source have been enormous. The stockmen were unacquainted with the different poisonous plants growing in their districts with the result they were unable to combat the trouble. Literature upon poisonous plants was not available and it required some time to try out various lines of treatment and antidotes for the different kinds of weed poisoning in the various animals. After many delays and failures experiments were tried out which gave a fair amount of encouragement, and with the valuable co-operation of Mr. J. C. Hooper, Principal of the School of Agriculture, Claresholm, and Provincial Biologist, it was decided that a bulletin containing a description of the common poisonous plants of Alberta, the symptoms resulting from the eating of these plants and the remedies recommended and the antidotes, be published. We believe the information contained in this bulletin will be invaluable to many stockmen. It should assist greatly in the identification of the poisonous plants in Alberta, and also aid greatly in the eradication of them.

Gastro-enteritis.—A peculiar condition occurred among cattle during the early part of the winter which deserves some special mention. Owing to the seriousness of the feed situation many stockmen were forced to use feed lacking in nutrition with the result that digestive troubles arose in many localities in such alarming proportions that it almost assumed the appearance of an epidemic. The symptoms varied a great deal which, no doubt, accounted for confusion in trying to make a correct diagnosis. From data gathered and many post-mortems held it is to be concluded that the trouble is an inflammation of the walls of the stomach and intestines produced or at least assisted by exposure to cold or inclement weather especially noticed in debilitated animals, or animals, more particularly cattle, improperly fed.

Symptoms.—There is well marked general depression, the ears drooped, the muzzle dry, dry skin, staring coat, the pulse is weak, the gait is slow and often staggering, there is loss of rumination and of appetite, the passages are hard and often coated with mucus or blood, colicky pains are frequently present and well marked pain is present when pressure is applied to the abdomen. Towards the termination of the disease a severe diarrhoea sets in, the faeces being streaked with blood and having an offensive odor.

Post-mortem.—The membrane of the fourth stomach is often badly inflamed, and not infrequently the mucous membrane lining the intestines. Occasionally the inflammatory condition extends through the walls showing large red discolorations on the outside.

Treatment.—Carefully selected feed in small quantities is essential. Provide good warm quarters free from dampness. Linseed tea, boiled milk, boiled oatmeal gruel and rice water are beneficial. In some cases good results have followed from the administering of tannic acid in one dram doses three times a day. The giving of tincture catechu one dram doses three times a day has been attended with varying success. Sub-nitrate of bismuth, one to two drams, may be given, but it has not given the results that the ones previously mentioned have. From office records it appears that if those cases are taken in time, the animals well nourished and properly housed and given proper medical care, that a fair proportion of them will recover.

THE STALLION ENROLLMENT ACT.

During the second year of administration of The Stallion Enrolment Act applications for inspection were received from all parts of the province. The number of stallions to be inspected was considerably less than in the preceding year in which the first general inspection was made, but it was necessary to cover almost as much territory including the Peace River country. Weather conditions during the late autumn, which made it difficult to travel over country roads, interfered with the completion of inspections which it was intended should be made before the end of December. It is expected, however, these will be completed in good time next spring. The inspectors find that since the Act has come into operation the stallions being imported for sale are generally of a better class than before. Although a great deal has been done in the way of straightening out pedigree certificates and having them properly recorded at Ottawa it was again necessary to assist a considerable number of owners by granting them interim enrolment certificates for pure bred stallions in order that the horses might be used for public service until pedigree certificates were completed.

The following list gives a summary of the enrolments for the year showing the breeds and classification of the stallions enrolled. It will be seen that the proportion of sound and desirable stallions represented in the lists securing A and B certificates is large, there being very few horses presented that fall into C or the undesirable class. It will also be seen that out of a total of 1290 receiving certificates only 30 light-legged horses appear, including hackney, standard-bred, thoroughbred and Morgan.

LIST OF ENROLMENTS FOR 1919

Pure Breds.	Certificate "A"	Certificate "B"	Certificate "C"	Total
Clydesdale	266	243	14	523
Percheron	289	253	16	558
Belgian	82	34	2	118
Suffolk	8	9	0	17
Shire	22	19	3	44
Standard	10	5	0	15
Hackney	3	0	0	3
Thoroughbred	8	3	0	11
Morgan	1	.	.	1
				<hr/> 1290
Grades:	Certificate "D"			Total
	329			329

On account of difficulty in completing some inspections or in having pedigree certificates properly completed the following interim enrolments were issued until the necessary conditions could be complied with.

Pure Bred Interim certificates	409
Grade Interim certificates	2219
	<hr/> 2219
Total enrolments and Interim Certificates issued	2219

EXPERIMENTAL WORK

For the last four years experiments in cattle have been carried on relating to sterility and abortion. We realized the importance of this work, as from time to time some of the best cows in the herds stationed at the various demonstration farms ceased to breed and they had to be disposed of for beef, this meaning not only a great loss to the Government but to the cattle industry as well. By your direction this work has been given greater attention. In the autumn a visit was made to New York State Veterinary College at Cornell University, Ithaca, for the purpose of gathering all the information possible from Dr. W. T. Williams, Professor of Obstetrics at that Institution, who is having remarkable success in treating cases of this kind. This program has been carried out. The non-breeding cows have been gathered from the various demonstration farms to Olds, and although the experiments have been in operation only a few weeks, and it is too soon to make any definite announcement, it looks as though the results would be satisfactory.

It should be mentioned that Mr. G. H. Hutton, Superintendent of the Agricultural and Animal Industry Branch of the Canadian Pacific Railway, Department of Natural Resources, Calgary, has given valuable assistance in connection with these experiments. Suspected cases of abortion, also non-breeders at the C. P. R. Farm at Strathmore, were sent for experimental purposes. So far work has been very successful, and unless unlooked for obstacles arise there should be valuable results during the next few months.

Dr. Colin McPherson of the Stallion Inspection staff, who has been lecturing at the Schools of Agriculture, had also rendered valuable assist-

ance in these experiments. Investigations of this kind require considerable time before accurate information may be published, but unless unexpected difficulties occur a full account of experiments will be available in a few weeks with the results secured.

Respectfully submitted,

P. R. TALBOT,

Provincial Veterinarian.

REPORT OF THE SEED AND WEED BRANCH

SIR.—I beg to submit the report of the Seed and Weed Branch of the Department for the year 1919.

The work of the Branch during the year 1919 included the supervision of weed inspection work, field crop competitions, good farm competitions, local seed fairs, distribution of seed grain and feed under the 1919 Seed Grain Act, collection work in connection with former seed grain distributions, and general educational work along the most necessary and practical lines.

FIELD CROP COMPETITIONS

Early in the season a number of societies announced their intention of holding Field Crop and Good Farm Competitions, but later unfavorable crop conditions compelled a number to cancel their arrangements, and only seven Field Crop Competitions were held as follows:

<i>Society</i>	<i>Date</i>	<i>Judge</i>
Munson	August 6	E. R. Rasmuson
Griffin Creek	August 9	J. M. Clark
Colinton	August 13	N. S. Smith
Wetaskiwin	August 15	F. S. Grisdale
Stony Plain	August 16	N. S. Smith
Lacombe	August 20	E. R. Rasmuson
Sedgewick	August 29	E. R. Rasmuson



PUTTING UP NATIVE HAY IN CENTRAL ALBERTA.

All the above competitions were very successful, both from the point of number of entries and excellence of fields shown, and particularly in the north the interest shown in the competition augurs well for future efforts in this work.

LOCAL SEED FAIRS

The number of local seed fairs held during 1919 was fourteen—this small number being accounted for by the fact that the crop of 1918 was an unusually small one, and few societies undertook to hold seed fairs. Those held were fairly successful, however, the average number of exhibits being satisfactory. Some of the societies, however, show a great lack of interest in the local seed fair, and in a few cases where such are held almost every year the results do not warrant the expense, and in my opinion should be discontinued, unless the persons who are most closely interested show that they are prepared to expend some time and effort to make the seed fair a success. It is very discouraging to the officials of the Department to send judges sometimes a long distance only to find on arrival less than half a dozen samples of seed shown. The practice of holding seed fairs and poultry shows on the same date, especially if held in the same building, appears to be unwise and always affects the seed fair adversely. In cases, however, where this cannot be avoided much can be done to make such successful by wise arrangement of space and co-operation of those interested in such exhibit. The following is the list of seed fairs held in the fall of 1918 and winter of 1919 with dates and names of judges:

<i>Society</i>	<i>Date</i>	<i>Judges</i>
Bowden	Dec. 13, 1918	J. M. Clark and D. Gillies
Innisfail	Dec. 14, 1918	J. M. Clark and D. Gillies
Colinton	Dec. 17, 1918	Arthur Perrey
Vegreville	Jan. 15, 1919	J. M. Clark and D. Gillies
Camrose	Jan. 18, 1919	D. Gillies and A. Perrey
Magrath	Jan. 21, 1919	J. M. Clark
Stettler	Feb. 5, 1919	Arthur Perrey
Tofield	Feb. 12, 1919	A. Perrey and N. S. Smith
Lacombe	Feb. 12, 1919	E. R. Rasmussen, J. M. Clark
Vermilion	Feb. 18, 1919	J. D. Smith, J. M. Clark
Olds	Feb. 20, 1919	J. M. Clark and D. Gillies
Cochrane	Feb. 22, 1919	D. Gillies
Lake Saskatoon	March 1, 1919	J. Clement and H. Scott
Oyen	March 12, 1919	C. S. Wight, J. W. Allen

PROVINCIAL SEED FAIR

On account of the short crop of 1918 and also of the very great amount of work entrusted to this branch in connection with seed grain distribution, which work demanded not only the efforts of all the staff of the Branch but those of others from other Branches, it was decided not to hold a Provincial Seed Fair in 1919. Only a small proportion of the people of the province were in a position to take part in such a fair and other matters of importance demanded the full attention of the Branch. It is to be hoped, however, that with the return of normal conditions and good crops, this feature of the work will again receive its proper share of attention, as from the experience not only of this province but that of all other provinces where such annual seed fairs have been held, they have done a great amount of good by bringing

about a great improvement in the quality and yield of grain. With the greatly increased demand for good seed which is certain to result from the opening up of large tracts of land for cultivation throughout the province, every effort should be made to insure a sufficient supply of the very best seed. To this end at least three provincial seed fairs should be held annually in the province, one at Calgary to serve the southern part of the province, one at Edmonton for the central portion, and one at Spirit River or Grande Prairie for the large and productive area of the Peace River district. It has been clearly proven that the holding of one provincial seed fair does not serve the interests of a very large part of the province, because of the very great distances to be travelled to reach either Calgary or Edmonton, and it is also certain that in order to secure the "greatest good to the greatest number" the attendance of farmers at such fairs should be encouraged, and this can only be done by holding the fairs within the large producing areas.

INTERCHANGE AND GERMINATION OF SEED.

By means of the reports from the local seed fairs, and from other sources, the Seed Branch was enabled to assist many farmers who wished to secure good seed grain, and although no accurate record could be kept of the amounts so distributed, the aggregate was a large one. The germination work was conducted by the University of Alberta and the schools of agriculture, in addition to the Dominion Seed Branch at Calgary. Many thousands of samples were tested and their germinating powers assured before being sown, many samples of course being rejected as unfit for seed, thus saving the owners from sowing seed which could only have proved to be unprofitable. The potato crop of 1919 promised to be very large, but an untimely frost ruined a great part of it, therefore little or no action was taken by this Branch in connection with marketing of potatoes, very few being on the market.

SEED GRAIN DISTRIBUTION.

Owing to serious loss of crops in many parts of the province, a large distribution of seed grain and feed was made necessary, and under the provisions of The Seed Grain Act of 1919, a total distribution amounting to \$424,459.17 for seed grain and feed was made in March and April, 1919. The total number of bushels of grain supplied for seed purposes being wheat 109,918, oats 93,382, barley 3,122. In addition to the above after the drouth had seriously affected the grain crop, a distribution of fall rye was made in the southern part of the province amounting to 4,260 bushels at a total cost of \$9,209.25. All of the above amounts were distributed in the unorganized districts, principally in the southern and eastern parts of the province, a small amount having also been distributed in the north and north-eastern districts. The amount of work connected with the above distribution was very great and taxed the efforts of the whole staff to its fullest capacity. The total of persons supplied numbered about two thousand, and this involved the completion of about eight thousand different documents. All liens taken in security were duly registered not later than about June 10th, 1919.

COLLECTIONS.

Because of the short crops of 1918 and 1919 only a comparatively small proportion of the amounts due for advances of seed grain made

previously have been collected, and the demands upon the office staff consequent upon the shortage of feed in 1919 prevented any active campaign of collection work being undertaken, except the ordinary means used by the banks in which the notes taken for advances were held. The total collections for the year 1919, including same to date of this report, Feb. 28th, are as follows:

On 1917 accounts	\$ 3,643.66
On 1918 accounts	7,190.19
On 1919 accounts	29,672.83

The balance now overdue on advances made in 1917 is comparatively small—about \$7,800.00—and if a reasonably active effort is made during this year all, or at least the greater portion, can no doubt be collected. In the case of the 1918 and 1919 advances, collection of these amounts will depend very much on the nature of the crops to be raised in this and following years, as the greater portion of the advances were made in the districts which have suffered most severely during the past three years and as a consequence the debtors are not in a position to pay, most of the payments received during 1919 having been made through the mortgage and loan associations, who no doubt are clearing the titles in order to more effectively secure their companies.

NOXIOUS WEED INSPECTION.

This work was carried on along the same lines as in previous years except that on account of the early drouth it was not considered wise to continue the inspectors at work for so long a term as usual. In all, thirty inspectors were engaged for varying periods, as the work demanded, some districts requiring an earlier inspection than others. With only one or two exceptions the men engaged gave satisfactory service. In the case of those who failed to do so, their services were dispensed with as soon as it was found they were incapable. Following are the names and addresses of the inspectors employed during 1919:

Archibald, A. R.	Cardston
Boulanger, M.	Gleichen
Coulen, Arthur	Jumping Pond
Clark, John	Gleichen
Chapman, Roy	Bowell
Grady, L. T.	Warner
Gillies, Archie	Bowell
Hallowell, John	Thelma
Hopewell, Ed.	Cardston
Haines, L. A.	Turin
Hall, Fred	Medicine Hat
Johnson, Frank	Bassano
Jaffray, Peter	Olds
Lynn, Ed.	Albion Ridge
Laidlaw, Jas.	Claresholm
Mercier, Ammon	Magrath
Murray, Geo.	Whitla
McDougall, Dan	Winnifred
McLean, Alex.	Barons
Nalder, N. B.	Raymond
Patton, P. K.	Brooks
Ries, D. S.	Masinasin
Robinson, H.	Eyremore
Scott, H. J.	Lethbridge
Scott, V. L.	Majorville

Sobey, Ed.	Alderson
Sheddon, Thos.	Taber
Thompson, M. S.	Orion
Trowes, Ernest	Cochrane
Wheaton, G. E.	Acadia Valley

NOXIOUS WEEDS

Conditions of the troublesome weeds do not change rapidly, the extent of the growth varying somewhat by reason of climatic conditions. The season of 1919 being an extremely dry one, not so much trouble was experienced with the early maturing weeds, but later in the season such weeds as Russian Thistle, Canada Thistle, and Wild Oats, particularly the first named, caused a good deal of trouble and owing to the fact that the work of weed inspection had ended, the work of eradication was hampered. It would seem to be necessary if the best results are to be secured, to employ inspectors for a longer season, in order to cope with the late growing weeds. This will, of course, entail an increased expense, but I am convinced the results would justify such additional cost.

A large number of illustrated bulletins were distributed during the year by mailing from the office and by the Schools of Agriculture. At a few of the local seed fairs addresses were given by the judges, but in most cases the attendance was so small that this was not practicable, a condition which should be remedied by the people themselves who should attend such fairs in greater numbers.

The regular work of the Branch has the past year been greatly increased, and the additional duties connected with relief work have demanded so great a portion of the time of the Superintendent, and others of the staff that perhaps some matters which should have received attention have been seemingly neglected. It is to be hoped, however, that with the return of normal crop conditions such relief work will be very much decreased if not entirely eliminated.

Respectfully submitted,

J. D. SMITH,

Superintendent.

REPORT OF THE POULTRY BRANCH

SIR,—I beg to submit herewith the report of the Poultry Branch for the year 1919.

THE GROWTH OF THE POULTRY INDUSTRY.

The growth of the poultry industry in Alberta is indicated in the following figures which are taken from the Dominion Statistical Branch reports and which represent the number of poultry in Alberta.

1911	2,445,117
1916	3,172,777
1919	4,425,373

THE VALUE OF THE EGG AND POULTRY CROP.

The value of the egg and poultry crop of 1915 is given in the census report as \$3,728,000.

Assuming the above increase in the number of poultry to be correct and the price of eggs and poultry meat to be the same as in 1916, the value of the egg and poultry crop of 1919 would be \$5,229,000. In view of the increase in values, however, 1919 as compared with 1916, the value of the crop of 1919, I think, might be placed considerably higher.

ASSISTANCE GIVEN IN MARKETING POULTRY PRODUCTS.

The Calgary and Edmonton branches of the Egg and Poultry Marketing Service, which are operated jointly by the Dominion and Provincial Departments of Agriculture, have provided a market at which producers in the province might at any time obtain the full current market value of their poultry products.

It has been the business of the Marketing Service to prepare the produce for market in such a way as to present the most attractive appearance and to command the best price. The eggs received have been carefully graded according to the Canadian standards, packed in new cases and for the most part sold on the local markets immediately they were received. In the spring and summer months, however, some of the better grades were placed in cold storage and marketed later in the year.

The fowl, turkeys, ducks and geese were killed, dressed and packed in boxes as required by the various markets and what spring chickens were suitable were milk-fed for a period of from ten to fifteen days and then killed, dressed and packed to satisfy the best trade. The finished graded product was then sold on the best available markets and the full amount received, less the bare operating expenses, was returned to the producer.

Perhaps the greatest advantage gained by the producers through the marketing service is in the way remittances have been made. All payments have been made according to grade. Formerly the farmer, when dealing with the country merchant, was unable to obtain any recognition



POULTRY SHOW AT CALGARY.

of quality whatever and as a result his effort to make the most out of this department naturally relaxed. Since the adoption of the quality payment system by the marketing service, however, the general quality of the produce received has considerably improved. Also the better methods practised and demonstrated by the Marketing Service have had some favorable influence upon the methods followed of the produce trade.

THE EGG AND POULTRY MARKETING SERVICE.

CALGARY BRANCH.

The number of points in Alberta at which farmers and farmers' organizations made use of the Calgary branch of the Egg and Poultry Marketing Service, during the season of 1919, was 118 as compared with 81 during 1918, an increase of 37 points.

The total number of shippers making use of the Service as at December 31st, 1919, was 315 as compared with 153 during 1918, an increase of 162. Many of the shippers are individuals and others are appointed shippers who, in themselves, represent many individuals.

The total quantity of eggs handled from January 1st, 1919 to December 31st, 1919, was 2,576 cases, or 71,894 dozens. Also 541 pounds of egg meat was made of broken eggs during the season, stored and marketed locally.

The total quantity of poultry handled during the period from January 1st, 1919, to December 31st, 1919, was 11,195 head or 67,159 pounds. This is 2,673 head more than the number received in 1918. Poultry receipts included turkeys, ducks, geese, fowl and spring chickens.

The total quantity of eggs put into storage during 1919 is as follows: Extras, 5,880 dozen; No. 1's, 10,710 dozen; No. 2's, 810 dozen; liquid eggs, 541 lbs.

The total business turnover for the year including eggs and poultry was \$63,384,466.

THE 1919 SHIPPING POINTS.

Ardley, Alix, Aldersyde, Acme, Botha, Big Valley, Bowden, Barons, Blackfalds, Blackie, Benton, Brant, Beiseker, Champion, Camrose, Carbon, Carmangay, Carstairs, Cavendish, Carsland, Coronation, Cayley, Castor, Cheadle, Clive, Craignyle, Consort, Crossfield, Dallmead, Dalroy, Claresholm, Didsbury, Duhamel, Duchess, Daysland, Elnora, Erskine, Foremost, Fenner, Gwynne, Gadsby, Gladys, Gleichen, Halkirk, Hanna, Haynes, High River, Hill End, Hespero, Hussar, Huxley, Innisfail, Irma, Irricana, Jenner, Killam, Kitscoty, Kootuk, Langdon, Leo, Lomond, Lousana, Manyberries, Markerville, Mazeppa, Millicent, Macleod, Mecheche, Mound, Moyerton, Munson, Myleen, Milk River, Namaka, Nemiskam, New Bridgen, New Norway, Nightingale, Nanton, Okotoks, Olds, Orion, Orton, Oyen, Penhold, Ponoka, Pincher, Parkland, Quarrel, Retlaw, Red Deer, Richdale, Rockyford, Stettler, Sylvan Lake, Sedgewick, Seven Persons, Springbank, Standard, Swalwell, Sibbald, Scotfield, Stavely, Twining, Tees, Three Hills, Throne, Trochu, Tudor, Veteran, Vegreville, Victor, Wetaskiwin, Whitla, Winnifred, Youngstown, Zetland.

THE EGG AND POULTRY MARKETING SERVICE.

EDMONTON BRANCH.

The Edmonton branch of the Marketing Service was opened in the month of June 1919. During the balance of the year farmers and organizations at 35 points in the Edmonton district made use of the Service.

The list of points shipping in 1919 is as follows: Alliance, Bruce, Bawlf, Czar, Olive, Cadogan, Donalds, Duffield, Leduc, Loughheed, Lloydminster, Millet, Minburn, McDonaldville, New Norway, Onoway, Red Willow, Ryley, Sedgewick, Strone, Stony Plain, Vanesti, Viking, Wetaskiwin, Westlock, Tofield, Edgerton, Heldar, Islay, Innisfree, Killam, Kinsella.

NEW EGG LEGISLATION

At the 1919 session of the Legislature an act was passed respecting the purchase and sale of market eggs. The following are the principal sections of this act:

Sec. 2. No person, firm or company in the Province of Alberta shall buy, sell or have in possession for sale, eggs known as "yolks stuck to the shell," "heavy blood rings," "partially hatched," "mouldy eggs," "black spots," "black rots," "mixed rots," "addled eggs," or any otherwise unwholesome eggs, in excess of one per cent, of the total of each transaction, unless the same are broken in the shell, and then denatured so as to render the same unfit for human food.

All first handlers, whether country merchants, hucksters, city merchants, or produce dealers shall candle all eggs received by them and shall reject all unwholesome eggs as described in section 2.

All eggs placed in cold storage for a period exceeding sixty days must be candled as provided in section 3 of this Act, and must be packed in new dry cases provided with new fillers and flats.

The purpose of this legislation is to conserve the original freshness and good quality of that proportion of the eggs produced in the province which enter into trade. The regulation is aimed directly at the elimination of the unwholesome egg, but the greatest good will be shown in the general improvement of the quality of the wholesome eggs brought about by the enforced revision of the egg producers' and egg handlers' methods.

Numerous cases might be cited to show the need for this legislation. One produce house for instance, in the month of July, 1918, received 135 shipments of eggs and among them only four shipments were entirely free of bad eggs. The average number of bad eggs per case in the 131 shipments was 10.1. The edible eggs in these shipments, as in nearly all shipments containing a like proportion of bad eggs, were largely of the lowest commercial grades.

In the first year of the operation of the Act, special attention was given to its enforcement among the wholesale section of the trade. The majority of the wholesale dealers, however, showed themselves to be entirely in sympathy with the act. At a meeting of the Produce Dealers' Association held in Calgary at the time the bill was before the House, a resolution was passed endorsing the bill and asking for its enactment.

For the most part the dealers adjusted their methods of operation to the requirements of the Act immediately the Act came into force. Toward the close of the egg season according to the testimony of a number of the produce dealers current receipts were showing considerable improvement in quality as a result of the operation of the Act.

The regulation affects the operations of the country store-keeper, perhaps more than any other handler. He is required to examine the eggs he buys by candling and to reject and decline to pay for any that are unfit for food. In the past, country merchants have acknowledged the wisdom of this policy but have thought that they could not put it into practice without the aid of legislation.

There have been two inspectors in the field, one supplied by the Department of Agriculture and the other by the Attorney General's Department. Both inspectors have had other duties to perform for their respective department, but special attention was given to the enforcement of the Act during the summer and fall months when production was heaviest and weather conditions such as to demand particular attention to the handling of the market eggs.

CANADIAN NATIONAL POULTRY CONFERENCE.

A conference of unusual interest to the poultry world was held in Ottawa in the month of February. There were in attendance representatives from the various Departments of Agriculture, Agricultural Colleges, Experiment Stations, Provincial Poultry Associations and Produce Dealers' Associations. The conference was called for the purpose of discussing some of the more important questions and problems that are now facing the industry and for the adoption of such recommendations as would improve the conditions surrounding the production and marketing of poultry products.



EGG-MARKETING WAREHOUSE, EDMONTON.

The conference was undoubtedly the most representative of its kind that has been held in Canada. There were delegates from all of the provinces present, and all sections of the egg and poultry trade were well represented. Mr. C. M. Baker of Calgary was selected as the representative of the Alberta Provincial Poultry Association. The Department of Agriculture was also invited to send a representative and it was my privilege to go in that capacity.

The discussions and recommendations covered the following subjects:

Canada's Potential Possibilities in Egg and Poultry Production.
 Poultry as a means of Soldiers' Re-establishment.
 Needed Legislation.
 The Need for Greater Production.
 Economic Production through Stock Improvement.
 Breeding Problems.
 Record of Performance for Poultry.
 The Extension of Co-operation in Marketing.
 Old Country Representation for the Canadian Egg and Poultry Trade.
 The Fancier and the Poultry Industry.
 The National Importance of the Poultry Industry.

THE PROVINCIAL POULTRY PLANT.

I am able to report another successful year in connection with the operation of the Provincial Poultry-breeding Station. A good egg yield has been maintained and the stock raised is showing gradual improvement in type and laying ability as a result of a careful system of selection and breeding. During the season the following egg orders were filled:

Barred Rocks	1824 eggs.
White Wyandottes	936 eggs.
Rhode Island Reds	767 eggs.
Buff Orpingtons	684 eggs.
White Leghorns	628 eggs.
	<hr/>
	4839 eggs.

Day-old chicks were also supplied as follows:

White Wyandottes	474 chicks.
Buff Orpingtons	302 chicks.
Rhode Island Reds	324 chicks.
Barred Rocks	249 chicks.
White Leghorns	178 chicks.
	<hr/>
	1527 chicks.

In addition to the above the following eggs for hatching were supplied to School Poultry Clubs.

Edmonton District	2600 eggs.
Stony Plain District	338 eggs.
Sedgewick District	52 eggs.
	<hr/>
	2990 eggs.

The following orders for eggs were filled by poultry breeders after the supply of the Poultry Plant was exhausted:

White Leghorns	1207 eggs.
White Wyandottes	645 eggs.
Barred Rocks	364 eggs.
Buff Orpingtons	220 eggs.
Rhode Island Reds	168 eggs.
	2604 eggs.

Respectfully submitted,

A. W. FOLEY,

Poultry Commissioner.

REPORT OF THE COLLEGE OF AGRICULTURE

SIR.—I beg to submit herewith the report of the College of Agriculture for the year 1919.

The attendance at the College of Agriculture for the present academic year is thirty-five, made up of: First year, fourteen students; second year, thirteen; third year, six, and two students taking special courses.

COURSES

The work of the College of Agriculture consists of a three-year course leading up to the degree of B. S. A. Students eligible to enter are graduates from the Provincial Schools of Agriculture who have been approved by the Board of Agricultural Education, and applicants bearing equivalent credits from any recognized agricultural institution. The subjects covered in the three years of the course are: Animal Husbandry, Field Husbandry, Soils, Horticulture, Veterinary Science, Chemistry, Physics, Biology, Geology, Bacteriology, English, Mathematics and Economics. The subjects of Farm Mechanics, Farm Poultry and Farm Dairying are completed at the Schools of Agriculture, but study is made of market conditions as affecting poultry and dairying in the fifth year of the course.

Details of the courses are given in the University Calendar and in a more amplified form in a College Circular.

STAFF

H. M. Tory, M.A., D.Sc., LL.D., F.R.S.C.,	President of the University.
E. A. Howes, B.S.A.,	Dean
A. A. Dowell, B.S.A.,	Professor of Animal Husbandry.
G. H. Cutler, B.S.A.,	Professor of Field Husbandry.
F. A. Wyatt, M.Sc., Ph.D.,	Professor of Soils.
E. K. Broadus, M.A., Ph.D.,	Professor of English.
A. L. F. Lehmann, B.S.A., Ph.D.,	Professor of Chemistry.
E. W. Sheldon, M. A., Ph.D.,	Professor of Mathematics.
F. J. Lewis, D.Sc., F.R.S.E. & C., F.L.S.,	Professor of Biology.
R. W. Boyle, M.A., Ph.D.,	Professor of Physics.
J. A. Allan, M.Sc., Ph.D.,	Professor of Geology.
George Harcourt, B.S.A.,	Lecturer in Horticulture.
J. E. Lattimer, B.S.A.,	Assistant Professor of Animal Husbandry.
R. Newton, B.S.A.,	Assistant Professor of Field Husbandry.
P. R. Talbot, V.S., M.D.V.,	Special Lecturer in Veterinary Science.

In all institutions of agricultural education, research work is recognized as fundamental in doing successful teaching of Agriculture; this entirely apart from the public service rendered by such investigational work. Particularly is this necessary where men proceed to degrees and leave the institution with a recognized standing, which standing should have back of it a college course founded upon not only study of organized facts but careful investigation into the field of the unknown. It is the

aim of the College of Agriculture of the University of Alberta to make experimental work the centre about which all other activities must function, not in field crop work alone but when practicable, in all the departments of teaching and study. Detailed mention is made of the work in Animal Husbandry and Field Husbandry. By next year we shall be able to publish a detailed report of the development in the Department of Soils. Later other Departments will be brought up to standard.

The relationship with departments not directly agricultural is given in the president's report for the whole University.

Following is a brief outline of the work being carried on in the different departments:

DEPARTMENT OF ANIMAL HUSBANDRY

SWINE

1. *Summer, 1918.*

Experiment No. 1.—Limited vs Heavy-feeding Pigs on Pasture.

Many swine-men have been feeding their spring pigs a very limited grain allowance during the summer months with the intention of feeding them out as rapidly as possible after threshing. This practice has a definite bearing on the question of economical pork production. Five lots of five pigs each were carried in this experiment and results were so striking that we believe this information will be of great value to swine producers in general. Pigs in each lot were alike in age and breeding and consequently began the experiment on June 6th, at approximately the same weight. On October 6th, just four months later, the average weight of lot I was 101.55 pounds; lot II, 123.81 pounds; lot III, 154.82 pounds; lot IV, 189.11 pounds; and lot V, 226.24 pounds. Results are given in detail in the article "Feeding Pigs for Profit."

2. *Winter, 1918-19.*

Experiment No. II—Feeding Pregnant Brood Sows.

In addition to repeating certain phases of the preceding winter's work, other rations were compared.

3. *Summer, 1919.*

Experiment No. III—Feeding Pigs on Pasture.

Results of the preceding summer's experiments justified more complete feeding tests comparing light and heavy feeding. In all 160 pigs were used during this experiment. Some of the self-fed pigs were marketed in November, while the light-fed lots are just approaching market weight. These figures will be available for publication in time to be of assistance to swine growers in their feeding operations during the coming summer.

4. *Winter, 1919-20.*

In addition to completing the 1919 summer tests we are now carrying 35 sows and gilts for our third winter's work in comparing different

feed combinations for pregnant sows. After one more winter's work we should issue a bulletin on this important subject.

SHEEP.

1. Beginning with the spring of 1917 we have kept detailed lamb and wool records of every breeding sheep carried by this Department. These figures are only of a general nature, but it was impossible to commence actual experimental work until the spring of 1919, when 50 grade ewes were purchased for this purpose.

2. *Summer, 1919.*

Experiment No. I.

During the summer of 1919, all of the above mentioned grade ewes along with their lambs were placed on experiments to determine the value of grain-feeding lambs on different pastures. Owing to the late purchase of the new farm and the difficulty in securing suitable fencing and pastures, these results are not as complete as we would wish. This work will be continued next year.

3. *Fall, 1919.*

Experiment No. II.

Four lots of grade lambs were given a 45 days' feeding test on the same grain mixture but with different roughages. One lot was fed alfalfa hay, another on timothy hay, another on prairie hay and the fourth on oat green feed. These results will be published this fall just before the lamb-feeding season.

4. *Winter, 1919-1920.*

Experiment No. III.

The fifty grade ewes purchased in the spring of 1919 have been bred to rams of different breeds and placed in 10 different groups of 5 each. Each lot is being fed on a different roughage or combination of roughages with the idea of determining the value of these feeds for pregnant ewes. This work has been carefully outlined and from the material at hand, will be the most complete information available in Western Canada.

5. *Sheep Exhibits.*

At the 1919 Edmonton Spring Fat Stock Show, this Department exhibited four fat wethers winning 1st and 3rd in the yearling class and 2nd and 4th in the class for lambs. The first prize yearling wether was later made Grand Champion fat sheep of the Show, and was pronounced the best fat sheep ever exhibited at a western fair.

BEEF CATTLE.

1. The outstanding feature of our work in beef cattle has been the annual fat steer exhibits made at the Edmonton Spring Fat Stock Shows. In the spring of 1917 but one steer was shown, winning the grand championship. In the spring of 1918, five steers were exhibited winning 1st, 3rd, 4th, 5th and 6th in the open class and the reserve championship. In the spring of 1919, seven steers were shown winning 1st and 2nd in the

three-year-old class, and 1st, 2nd, 4th, 5th and 6th in the two-year-old class. The first and second prize two-year-old steers were made grand and reserve champions of the show. In passing it will be of interest to note that the grand champion steer was purchased in July, 1918, for \$150.00 and sold April, 1919, for 32 cents per pound live weight, or slightly over \$150.00.

2. *Steer Herd for 1920 International.*

In co-operation with the live stock breeders of Alberta the University is now preparing an exhibit of fat steers for the 1920 Chicago International. In all, 32 breeders offered to donate calves for this purpose—14 have been selected and are now at the University Farm. This we consider an important step towards bringing the live stock breeders in touch with their Provincial University.

DAIRY CATTLE.

1. Detailed breeding and production records have been kept for every dairy cow in the herd. In one case it was found that one two-year-old pure bred Holstein heifer produced 14,781 pounds milk and 522 pounds butter fat in 365 days, while another heifer of the same age and under identical conditions of feed and care produced but 8,943 pounds milk and 290 pounds butter fat during the same period. Figuring all feed at market price, butter fat at the price paid by the creamery and skim milk at 50 cents per hundred-weight, the former made a gross return above cost of feed of \$177.59 and the latter but \$68.05 above the year's feed bill. Two pure bred Jersey heifers, gave even more striking results. One produced 8,661.6 pounds milk and 426.5 pounds butter fat at a gross profit over feed of \$123.63, while her stable mate made the low record of 2951 pounds milk and 140.5 pounds fat at a gross return above feed cost of \$18.37. These results show the importance of the intelligent use of scales and the Babcock test in eliminating low producers. The relation between type and milk production is also clearly shown. This information will be of use in future publications dealing with dairy cattle.

PLANS FOR FUTURE OPERATIONS.

Live Stock Experiments.

I. Beef Cattle.—Most of the feeder cattle grown in Western Canada are exported to the United States to be finished for market. It is felt that it would be good business for Canada to feed these steers at home where the necessary feeds are ordinarily cheaper than at eastern or southern points. By carefully planned experiments we can secure results that will be of untold value not only to Alberta but to the three prairie provinces. This work would place this institution on a plane by itself in the minds of the stock-men in this country.

II. Sheep.—Sheep have recently been purchased for experimental purposes and this branch of our work will be pushed as rapidly as accommodations will permit.

III. Swine.—We have already conducted extensive swine experiments and have outlined plans that will make this University the centre for information on this important branch of our live stock production.

IV. *Dairy Cattle*.—The number of dairy cows on hand have made it impossible to carry on feeding experiments that would be of any considerable value, but as the herd increases we propose to give this part of our work the attention it deserves. A comparison of silage, roots and dry roughages will be made next winter.

V. *Horses*.—Up to the present no experimental work with horses has been carried on, due to the fact that competent help was not available. This year a horseman will be placed in charge so that some feeding tests will be outlined for the coming season.

DEPARTMENT OF FIELD HUSBANDRY.

The Department of Field Husbandry is organized with a view to—

I. Investigating the problems of crop production in Alberta and producing and making available improved strains of all farm crops of economic importance.

II. Teaching the principles of crop production and the practices of successful farming to the regular students of the College of Agriculture and others.

III. Extending the knowledge of the science and practice of successful crop production to the farmers of Alberta.

The extension work of the Department of Field Husbandry comprises:

1. Germination tests for farmers.
2. Correspondence with farmers and others regarding problems in crop production.
3. Outside lectures.
4. Preparation of circulars and bulletining of information on crop production.
5. Judging at seed fairs and plowing matches.
6. Demonstration work in crop production.

In attempting to study the problems of crop production in Alberta, our investigation work has fallen into four main divisions, namely:

- I. Choice of classes and varieties of farm crops.
- II. Crop improvement.
- III. Crop management.
- IV. Soil management.

I. Choice of Classes and Varieties of Farm Crops.

The aim of the Department of Field Husbandry is to assist the crop grower in making a more adequate choice of suitable classes and varieties of crops by introducing and testing new varieties from varied conditions approximating those in Alberta, and by testing untried varieties put on the market by seed-men and others. Much has been done in this direction, but when one examines closely into the needs, much still remains to be done. Even in the cereal crops we find that there are plenty of sections in central, north central, and northern Alberta, where suitable early productive varieties, more especially of wheat and oats are not available.

The forage crops problem too is one of supreme importance especially in districts where the virgin prairie has become fully settled up and where the rainfall is normally light. In a permanent system of Agriculture, moreover, Alberta, like any community, must have hardy grasses and legumes both as a source of fodder and as a means of maintaining soil productiveness. The widest choice and the greatest number of varieties in each of the following classes of crops have therefore been made and is at present under test.

II. Crop Improvement.

The improvement of any crop consists of the following progressive steps:

1. The introduction and testing of varieties from all sources and especially those approximating the conditions in Alberta.
2. Head selection en masse to purify and remove widely differing types.
3. Pure line selection to isolate existing superior strains from suitable varieties followed by a test of the projected efficiency of each.
4. Cross breeding to combine into one individual the desirable qualities of two or more varieties or strains.

III. Crop Management.

One of the primary aims in carrying out experiments in crop management is to determine the extent to which earliness can be secured through such instruments as time of seeding, rate of seeding, depth of planting, etc., etc.

IV. Soil Management.

The tillage or cultivation of virgin land, sod land and stubble land possesses many difficulties especially to the new-comer who comes from other climates or even from other parts of this province where conditions are different. Due attention is being given to the tillage of sod land in which we are including the study of timothy, brome grass, western rye grass, and mixed meadow sod. These experiments include the testing of each of twenty methods of tilling corn land, potato land and root land for oats.

THE PRODUCTION AND DISTRIBUTION OF GOOD SEED.

The question of multiplying and distributing good seed, goes hand in hand with crop improvement and plant breeding. For as fast as new productions are made and tested out the public want them. There is a constant demand, on the part of the public, for pure, typical, clean seed. For two years past we have distributed between four and five hundred bushels of good seed, some of it directly from the University, but most of it through the Department of Agriculture. This year we have upwards of three hundred bushels of very choice oats and a small quantity of wheat. Some of this seed cannot be purchased elsewhere in Canada and represents the highest standard of excellence resulting from selection. The demand for it is very keen, and we hope to place it out in such a way that it can be inspected in field and sack in co-operation with the Canadian Seed Growers' Association, thus keeping a record of it in the future. We shall be in a position therefore, to control its multiplica-

tion and in turn its distribution which will enable us to distribute it ultimately to the greatest number of farmers in the Province. To give some idea of the call for good seed such as we can produce, our letter files show upwards of one thousand requests during the past two seasons.

The germination work for farmers for the past two winters far exceeds three thousand separate tests. Closely allied with this type of service is the preparation of circulars and articles for publication. Articles have been regularly contributed to the western farm journals, not to mention our regular contributions to the Weekly Press Bulletin, issued by the Department of Extension.

DEPARTMENT OF SOILS.

As stated in last year's report a department of soils has been established at the University of Alberta since 1916, the work being carried on under the direction of the Department of Chemistry. This year the department is in direct charge of one of the best-known experts, secured from the University of Illinois. It is too early to speak of the work contemplated in this department, except in a general way. The work undertaken will consist of plot tests, custom work and problem investigation. Teaching in this important department is carried on during the last two years of the course.

DEPARTMENT OF HORTICULTURE.

A certain amount of experimental work is carried on in this department in connection with variety tests and cultural methods. It is becoming increasingly apparent that the subject of horticulture is an important part in our problem of home building and we need all the information possible in regard to varieties of trees, shrubs, flowers and vegetables best suited to certain localities along with a knowledge of how to handle them.

SPECIAL COURSE FOR RETURNED SOLDIERS.

Our special course in agriculture for returned soldiers under the auspices of the Soldiers' Civil Re-Establishment is still being carried on. Beginning with October, 1918, the work has been practically continuous throughout the year. This directly practical five months' course has been very much appreciated by the returned men. In all 266 men have entered upon this work. We have kept the maximum attendance at any one time at one hundred students. It should be stated that there has been no falling off in regularity, punctuality or discipline and the work continues to be highly satisfactory to the members of the staff. Details of the course may be found in last year's report, no material alteration has taken place.

Respectfully submitted,

H. M. TORY,

E. A. HOWES,

President,

Dean,

REPORT OF THE SCHOOLS OF AGRICULTURE AND DEMONSTRATION FARMS

SIR,—I beg to submit the following report of the Agricultural Schools and Demonstration Farms.

Regular classes were not held in the Schools of Agriculture during the school year of 1918-19 because of the influenza epidemic. The main school buildings were used as hospitals until about the first of February. Two weeks of short course work were put on at each institution during February. These lectures and demonstrations were well attended.

Last spring the School Fair work was put under the direction of the schools, and each principal working in co-operation with the Department of Education was made responsible for the carrying on of this work in the territory from which his institution drew students. The number of fairs was greatly increased and, considering the year, the results in this work were quite gratifying.

NEW APPOINTMENTS.

E. S. Hopkins, B.S.A., M.S., who had been Instructor in Science at the Vermilion School, was put in charge of Provincial Soil Investigations and was stationed at Olds. J. C. Hooper, M.A., Science Instructor at Claresholm School, was made Provincial Biologist. F. S. Grisdale, B.S.A., formerly principal of the Vermilion School, was transferred to Olds as principal to take the place of W. J. Elliot, B.S.A., resigned. J. G. Taggart, B.S.A., Science Instructor at Olds, was made principal of the Vermilion School. The Superintendency of the Demonstration Farms was turned over to the Department of Provincial Agricultural Schools



NEW AGRICULTURAL SCHOOL AT RAYMOND.

on May 1st and Mr. Donald Douglas, who had been manager of the Olds Farm, was brought to Edmonton and made Farm Director.

On account of the new work undertaken by Messrs. Hopkins and Hooper it was found necessary to enlarge the plot areas at each institution. At Olds sixteen acres were added and ten acres at each of the other schools. A farm of one hundred and fifty acres was purchased at Gleichen and upon this farm and the farms at Youngstown and Raymond, Schools of Agriculture are being built. It is expected that these three Schools will be ready to receive students in the fall.

For the purpose of assisting in establishing a School of Agriculture east of Calgary the Canadian Pacific Railway is deeding to the Provincial Government a half section lying a couple of miles from Gleichen. We wish to express our appreciation of this generous gift on the part of the Canadian Pacific Railway.

The schools at Olds and Claresholm opened in the regular way on October 29th last. The attendance at Olds is about one hundred and sixty and at Claresholm, ninety. The drouth has affected the attendance in the south.

At Vermilion the School was opened on November 15th for returned men. Fifty of them enrolled for a three months' course.

The detailed reports of the Principals and of Messrs. Hopkins, Hooper and Douglas follow.

Respectfully submitted,

A. E. MEYER,

Superintendent of Farms and Agricultural Schools.

CLARESHOLM SCHOOL OF AGRICULTURE.

Owing to the Spanish Influenza no regular classes were held either in Domestic Science or Agriculture during the winter and spring of 1919. The Agricultural School was used for a hospital, where over 200 patients were treated. We regret to have to report that a number of deaths occurred while patients were being treated at the school. Still it is generally conceded that had the institution not been turned over as it was, the number of deaths would have been much greater.

In February a short course in agriculture was given to men and women. Instruction included engineering, livestock, field crops, soils, weeds, poultry, killing and curing of farm meat. A short course at the same time was given for women in cooking and sewing. The minimum attendance at these courses any day was 35, and the maximum was 400, the average being 75 per day. The course in every way was considered a success.

The Agronomist, being the principal, had charge of experimental work, which was conducted on an area of 30 acres adjoining the school, and also took charge of what formerly was known as the demonstration

farm. In experimental work he was assisted by Mr. R. M. Scott. Experimental work under the direction of Mr. E. S. Hopkins, Provincial Soil Analyst, was also begun. The principal also judged at a number of fairs in the province. Mr. Qually, instructor in mechanics, acted as manager of the school farm at Raymond.

Mr. Hooper was appointed Provincial Biologist and conducted his researches along this line, and also prepared nitro-cultures during the spring and summer.

School fairs were conducted at nine centres in Southern Alberta under the direction of the principal, assisted by Mr. Walter Nelson and Miss Grace Robertson and Mr. R. M. Scott.

Miss Robertson, domestic science instructor, besides attending to school fair work, assisted the Women's Institute Branch for part of the summer.

On October 26th, there were registered students for the regular courses. Fifty-two boys took the first year's work, seven boys the second year, ten girls domestic science.

The staff of instructors included the following:

W. J. Stephen, B.A., B.S.A., Principal and Instructor in Field Husbandry.
 A. E. Qually, B.S.A., Instructor in Mechanics.
 J. C. Hooper, M.A., Instructor in Science.
 W. J. Reid, B.S.A., Instructor in Livestock.
 D. McConkey, B.S.A., Instructor in English and Mathematics.
 H. S. Pearson, Instructor in Dairying.
 Mr. Beckett, Assistant Instructor in Dairying.
 Dr. Talbot, Instructor in Veterinary Science.
 Dr. McPherson, Assistant Instructor in Veterinary Science.
 A. W. Foley, Instructor in Poultry.
 Miss Robertson, Instructor in Sewing.
 Miss McBeth, Instructor in Cooking.
 Miss Morkin, Instructor in Nursing.

Respectfully submitted,

W. J. STEPHEN.

OLDS SCHOOL OF AGRICULTURE.

As stated in the 1918 report, the severe epidemic of Spanish Influenza which broke out in the last two months of that year caused the board of agricultural education to cancel classes at the Olds School of Agriculture for the school year of 1918-19. This action, and the fact that Mr. W. J. Elliott, who had been principal at the school since 1913, resigned to take up work with the U. G. G., Calgary, caused a good many changes to be made in the staff. Mr. J. G. Taggart, the science instructor, and Mr. N. S. Smith, agronomist, went to the Vermilion School of Agriculture, the former became principal.

The following are the present instructors in the Olds School of Agriculture with the departments administered by each:

F. S. Grisdale, B.S.A., Principal and Instructor in Agronomy and Horticulture.
 G. B. Bodman, B.S.A., Instructor in Elementary Science and Soils.
 R. M. Scott, B.A., Instructor in English and Mathematics.
 G. R. Holeton, B.Sc., Instructor in Mechanics and Book-keeping.
 R. D. Sinclair, B.S.A., Instructor in Livestock.
 R. J. Whitbread, B.S.A., Instructor in Biology and Farm Management.
 Miss M. E. Storey, Instructor in Cooking.
 Miss Eva Wade, Instructor in Sewing.
 Miss Olive Lawson, Instructor in Sanitation, Household Administration and Civics.

The following special lecturers gave instruction at the school during the term:

H. S. Pearson, Instructor in Dairying.
 W. Hamilton, Assistant Instructor in Dairying.
 A. W. Foley, Instructor in Poultry.
 Dr. P. Talbot, Provincial Veterinarian.
 Dr. C. McPherson, Instructor in Veterinary Science.
 Wm. Grant, Instructor in Blacksmithing.
 Miss Martha Morkin, Instructor in Home Nursing.
 W. F. Stevens, Instructor in Farm Butchering.

ENROLMENT.

Each year's attendance at the Olds School of Agriculture since 1913-14 is as follows:

Year -	<i>First Year</i>		<i>Second Year</i>		<i>Total.</i>
	<i>Men.</i>	<i>Women.</i>	<i>Men.</i>	<i>Women.</i>	
1913-14	65	39	..	..	104
1914-15 ..	69	19	23	8	119
1915-16	83	50	21	7	161
1916-17 ...	56	53	19	7	135
1917-18 ..	81	29	18	17	145
1918-19	Influenza.				
1919-20	85	38	28	8	159
Total	439	227	109	47	822
	666		156		

It will be observed that the total attendance since the opening at the Olds School of Agriculture, counting the enrolment in the second years' as well as in the first years' is eight hundred and twenty-two. The first years' registration for the same period is six hundred and sixty-six. The registration in the first years of the agricultural course have been four hundred and thirty-nine; whereas the registrations in the first years of the domestic science course have been two hundred and twenty-seven. Out of the three hundred and fifty-four students who entered the first year agriculture prior to this year, one hundred and nine or thirty point seven nine per cent, have returned to take the second year's work. Of the one hundred and ninety who had entered the first year in domestic science prior to this year, forty-seven or twenty-four point seven three per cent have returned to complete their course.

The average attendance in the first year agriculture has been seventy-three point one six, and the average attendance in the first year domestic science has been thirty-seven point eight three. The average attendance in the second year of the agricultural course has been twenty-one point eight, while in the second year of the domestic science course it has been nine point four.

The average ages of both the men and the women who have taken the courses have been practically the same each year. During the first two years of the school's operation the average was approximately twenty-one. During the years of 1916-17-18 the average dropped below nineteen; this year it has risen again and is a small fraction short of twenty.

Of the three hundred and fifty-four men who entered the school prior to this year, and of the one hundred and nine who have completed the second year's work, twenty-six or seven point thirty-four and twenty-three point eighty per cent., respectively, have continued their agricultural studies in the University; and in the case of the one hundred and ninety who entered the domestic science course prior to this year, and of the forty-seven who have graduated, three or one point fifty-seven and six point nought six per cent., respectively, have taken advantage of the provision in the University for advanced study in domestic science.

The following men whose ages vary from fifteen to thirty-seven have registered at the Olds School of Agriculture this year:

FIRST YEAR.

Armstrong, James	Lacombe.
Bills, Eyelett	Crosfield.
Booth, Francis	Clive.
Booth, Paul	Clive.
Blenkhorn, Sheldon	Wimborne.
Bishop, Horace	Excel.
Banks, Blight	Coronation.
Bard, Harry	10544 - 84th Ave., Edmonton
Black, James	Hone Valley.
Bredo, Henry	Hilda.
Clutton, Charles	Olds.
Campbell, Archie	Olds.
Clarke, Alfred	2615 - Prior St., Victoria.
Charlebois, Arthur	Carbon.
Doak, J. K. R.	Bittern Lake.
Douglas, James	Strathcona.
Davies, Lewis	10606 - 84th Ave., Edmonton
Deadrich, John	Olds.
Dye, Lynn	Langdon.
Edgar, James	10825 - 101st Ave., Edmonton.
Fleishman, Boyd	Fenn.
Featherstonhaugh, Earl	Ft. Saskatchewan.
Foster, L. H. H.	Tomahawk.
Garret, Martin	Carbon.
Graf, George	Swalwell.
Graf, William	Swalwell.
Garrison, Ivan	Westlock.
Hyde, J. T.	Beauvalon.
Hyde, Hardy	Delia.
Howe, John	10251 - 105th St., Edmonton.
James, Reesor	Carstairs.
Johnson, Victor	Sevensmith.
Knepp, Howard	1667 Yale St. Victoria.
Kelly, William	Bulwark.
Lowe, Arthur	Amisk.
Lutterman, Ira	Bittern Lake.
Lund, Daniel	Dowling Lake.
Moss, Albert	Olds.
Metcalf, James	Lacombe.
Murdoch, Royal	Morningside.

Murdoch, Charles	Morningside.
McCalla, Fred	Bremner.
Martin, W. M.	10365 - 93rd St. Edmonton.
Mann, Mark	Alix.
Mossman, C. C.	Hughenden.
Mossman, F. I.	Hughenden.
Milligan, James	Innisfail.
Miller, R. M.	Lacombe.
Morris, Fraser	Lacombe.
Murschel, Gottlieb	Hilda.
McAnnel, D. A.	512 8th Ave., N.E., Calgary.
McIntyre, Earl	Donalda.
McFarlane, John	Clive.
McNicol, Frank	Crossfield.
McGhee, James	Ghost Pine Creek.
Nelson, F. Nels	Peace River.
Olson, Chris	Daysland.
Oliver, E. A.	Baraca.
Poland, Harold	Delia.
Parker, Raymond	Brant.
Poole, Hadley	Wimborne.
Quantz, Percy	Penhold.
Ramby, Gresson	Keoma.
Richardson, Evan	Red Deer.
Ruark, Archie	Ensign.
Ray, Ivan	Westcott.
Richardson, B. W.	Killam.
Rozmabel, Frank	Viking.
Stannard, Roy	Strathcona.
Stoniffer, Clayton	Kinsella.
Switzer, R. P.	Lacombe.
Steele, Lawrence	Ranfurly.
Sheppard, Sydney	Strathcona.
Skori, Thomas	Kinsella.
Thibaut, Albert	Lacombe.
Tolman, Ralph	Rumsey.
Tolman, John	Rumsey.
Whitford, Leonard	104 - 93rd St., Edmonton.
Welch, Stewart	Spirit River.
Ward, Harris	Stettler.
Wilson, D. A.	Killam.
Younger, O. R.	Wealthy.

SECOND YEAR.

Blaik, H. G.	Lacombe.
Bayfield, E. G.	Hutton, B.C.
Brown, W. R.	Eastburg.
Ballamy, H. C.	Keoma.
Cairns, Andrew	Islay.
Cross, J. S.	9836 - 92nd Ave., Edmonton.
Huskins, Leonard	Red Deer.
Juel, Gergers	Olds.
Juel, Jens	Olds.
Jones, Lyle	Rosebud Creek.
Kinzer, Nicholas	Killam.
Knudson, John	Dowling Lake.
Marrvat, Shelia (Miss)	Alix.
McKinnon, Don	Dalemead.
McAra, Malcolm	514 - 4th Ave. W., Calgary.
McAllister, J. W.	9124 - 80th Ave., Edmonton.
McDermid, Peter	Vegreville.
Norris, Leonard	Lorraine.
Nix, Harold	10219 - 115th St.
Price, Sam	Veteran.
Peacock, Bruce	Scotsfield.
Pinchbeck, A. E.	Vermilion.

Rodwell, Leonard	Ranfurly.
Richardson, J. W.	Killam.
Shopland, Herbert	Rochester.
Ward, Alfred	Clairmont.
Weatherly, Glen	Stettler.
Whiteside, Wm.	Penhold.

The following is a list of the names and addresses of young women registered at the Olds School of Agriculture in the Household Science Branch:

FIRST YEAR.

Coats, Lillian	Olds.
Clutton, Rowena	Olds.
Coldwell, Annie	Vanderhoof, B.C.
Carlson, Nina	Gull Lake, Sask.
Ciperly, M.	Olds.
Dafoe, Hattie	Coronation.
Dokken, Sylvia	Olds.
Fleishman, Pauline	Fenn.
Harding, Dorothy	Olds.
Hagan, Johanna	Altario.
Jones, Doris	Olds.
Johnson, Sadie	Camrose.
Kershaw, Maria	Didsbury.
Laycock, Bertha	Ponoka.
Laycock, Hazel	Ponoka.
Lohner, Celia	Daysland.
Moe, Elizabeth	Olds.
Mundy, Beatrice	Olds.
McKenzie, Annie	Lougheed.
Nelson, Esther	Hildsdown.
Nyback, Mamie	Markerville.
Phillips, Margaret (Mrs.)	Camrose.
Pokotilo, Genevieve	Olds.
Ray, Mollie	Westcott.
Sidey, Isabelle	Lloyds Hill.
Sylvester, Ida	Verdant Valley.
Sylvester, Mabel	Verdant Valley.
Stephenson, Rosa	Markerville.
Seyer, Gertrude	Botha.
Stratton, Minnie	Donalda.
Stevenette, Ada	Innisfail.
Sargent, Florence	Bawlf.
Tait, Isabel	Leo.
Walkley, Edna	Olds.
Wardstrom, Agnes	Daysland.

SECOND YEAR.

Bakkie, Ida	Rosiland.
Clark, Elvira	Olds.
Hughes, Marv	Didsbury.
Lohner, Hilda	Daysland.
Lawson, Jean	Wimborne.
McFarquhar, Jessie	Calmar.
Shortt, Annie	Box 242, Edmonton.
Simpson, Margaret	Pine Lake.

TWO YEARS' INSTRUCTION.

The course in the School of Agriculture consists of two terms of five months each. The first term begins the first of November and ends the last of March. These students successful in passing the examinations

course. At the end of the second year a final examination is given. A diploma is granted to those who pass this final examination. In addition to this all those who in the opinion of the examining board are eligible are given entrance standing to the University of Alberta. The course in agriculture at the University covers three years and if successfully concluded commands the degree of Bachelor of Science in Agriculture. There is a similar arrangement for the Domestic Science students.

COURSES IN AGRICULTURE.

The instruction in the Olds School of Agriculture is made to bear on the practical side of farming. The school has an excellent equipment in all departments. It is a matter of considerable satisfaction to the instructors in the various departments to realize that each year the courses in the school are becoming more valuable to the students; more valuable because the experience of the work in previous years is used in working out the course of study for the year in question. The useful material is retained and the less valuable parts are discarded to give place to material which is considered to be more serviceable. The course of study is as follows:—

Soils and soil cultivation, judging, feeding and care of live stock, the identification and eradication of weeds, judging and grading seed grain, selection of seed grain, rotation of crops, veterinary science, carpentry, blacksmithing, farm machinery, cement work, gasoline engines, road building, growth of small trees, vegetables, trees and shrubs, killing, cutting up and curing meats, farm management and elementary courses in mathematics, bookkeeping, chemistry, physics, English, public speaking and poultry. In dairying, instruction is given in cheesemaking, milk production, milk testing, buttermaking, care of the separator, etc.

DOMESTIC SCIENCE COURSES.

The home-makers' course is primarily one of a very practical nature. It is intended to make the girls who take it efficient home-makers. It includes enough theory to make the practical side truly valuable. In this course, sewing, cooking, home nursing, laundering, household administration, physiology, hygiene, sanitation, foods, household bookkeeping, dairying, poultry, horticulture, physical culture and courses in elementary English, mathematics, chemistry and physics are taught.

STUDENT ORGANIZATIONS.

In addition to the purely academic work the students have various organizations for promoting the lighter side of college life. They are:—

The literary society which holds weekly meetings, is given over to a programme of debates or some kind of other entertainment. Open debates are held once a month, and it is gratifying to note the benefit derived by most of the students from these meetings, especially in the matter of being able to express themselves properly to an audience.

The athletic association is active and has arranged for various kinds of exercise and amusement. There is a good open air rink at the school and there is skating and hockey games almost every day of the week.

The social committee has done valuable service in providing for three social evenings each month. These social evenings take the form of dancing, games, stunts, musical numbers, and the reading of the O. S. A. Chinook.

VACCINE.

Until the beginning of 1919 the Olds School of Agriculture distributed thousands of doses of the Dominion Government vaccine. This vaccine did not appear to give the best satisfaction, and for that reason the school quit handling it. A germ free vaccine made by the Purity Biological Laboratories, Sioux City, Iowa, has been issued from the school during the past year. Twenty-one hundred and fifteen doses of this vaccine were sent out, and as yet no complaints have been made against it. This vaccine cost 25c per dose during last year, but from now on it will be available at 15c per dose in bottles containing 5, 10 and 20 doses. The syringes that are used in injecting this vaccine are not the same as those used for the government vaccine. They are sold by the school at a cost of \$2.50 each.

ALUMNI.

The alumni have been organized since 1915. The fourth students' reunion was held at Olds, Jan. 5th, 1920. The attendance was very good, students from '14, '15, '16, '17, and '18 classes were present. The objects of the association are to keep the school in touch with the graduates, in touch with each other and to assist each member to keep enlightened on any advance made along the lines of agricultural work. It is proposed to accomplish this end by having as speakers at each alumni meeting, leading agriculturists, and by inducing alumni members to visit the school experimental station during the summer season.

CORRESPONDENCE.

June 21st, 1913 to June 30th, 1914	3793
June 30th, 1914 to June 30th, 1915	2619
June 30th, 1915 to June 30th, 1916	2221
June 30th, 1916 to June 30th, 1917	3055
June 30th, 1917 to June 30th, 1918	2688
June 30th, 1918 to June 30th, 1919	1924
June 30th, 1919 to Jan. 31st, 1920	1317
Average per year	2725

HONOR ROLL

So far as our records show eighty-seven boys or twenty-seven point four per cent. of the men who had registered at the school before the armistice was signed connected themselves in one way or another with the army. We have reason to believe the honor roll is not complete and for that reason the record is better than the above. This large per cent. who joined the colors is very gratifying, since at least ninety-nine per cent. of the students were from farms, where labor was very scarce during the war. The names and addresses of the men who joined the colors were published in the 1918 report. It shows that nine men lost their lives and twelve were wounded.

EXPERIMENTAL WORK.

Experiments are in progress to ascertain the varieties of cereals, grasses, clovers, alfalfa, forage, vegetables, roots, tubers, fruits, flowers and trees that will grow most successfully in the district. Tests with dates, rates and depths of seeding grain are under way. Such cultural methods as the following are under trial: Summerfallow vs. intertilled crops, wheat seeded in ground not ploughed; oat stubble disked seeded; oat stubble fall ploughed seeded to wheat; spring plough oat stubble and fall plough oat stubble seed to oats; stubble burned seeded to wheat and pastured to oats; fall plough pack in fall harrow and seed in spring; fall plough in fall harrow and seed in spring; fall plough, harrow in fall, pack, harrow and seed next spring; spring plough, pack and seed; spring plough, harrow and seed; spring plough, harrow, pack and seed.

In summerfallow treatment the following are under test: Plough shallow in June, cultivate as required; plough deep in June, cultivate; plough August first cultivate; plough deep in June and merely clip the weeds, no cultivation; plough deep in June and leave weeds grow; plough deep in June, harrow, leave untilled; plough deep in June, harrow, leave untouched until September, then disc and harrow.

In rotations the following are under test: Wheat, oats and barley seeded to (timothy), (red clover and alsike), oat green feed for hay, pasture, and summerfallow; hay, pasture, oats, barley (seeded to timothy, red clover and alsike); wheat, oat green feed, barley (seeded to timothy and western rye), hay, and pasture; wheat, oat green feed, barley (sweet clover and alsike); wheat, oats, barley, (timothy and western rye), pasture, green feed (oats); hay, hay, pasture, oats, oats, barley (seeded to timothy and western rye), hay, pasture, green feed (oats); oats, wheat, summerfallow; oats, barley, summerfallow; oats, wheat, barley, summerfallow; oats, summerfallow; oats, barley, sweet clover and alsike; wheat, wheat, summerfallow; continuous summerfallow; wheat continuously matured in four years at 10 tons per acre; wheat continuously; oats continuously; barley continuously; alfalfa continuously; brome continuously.

EXTENSION WORK.

The work of the staff connected with the Olds School of Agriculture is broadly speaking divided into two parts, that of instructing during the five winter months, and extension work, with the students and farmers during the remaining part of the year. This extension work embraces many phases of agriculture. The Animal Husbandry Instructor is available to farmers for consultation on live stock problems. The Mechanics Instructor gives valuable advice and information on building plans, engines, blacksmithing and carpentry. The Science Instructor is used by the public in various ways. For instance, he is ready to assist them in soil and crop problems. The Agronomist conducts considerable extension work with the farmers and students in the district which is served by the school. He co-operates with them in testing out varieties of grain, grasses, clovers and cultural methods of one kind or another. Judges are supplied to a large number of fairs, institute meetings are addressed, good farming competitions judged, and grain crops inspected

for the Canadian Seed Growers' Association. The School Fairs and Pig Club work now takes all of one man's time.

SCHOOL FAIR WORK.

The school fair work was re-organized with the view of serving a much larger territory than in previous years. G. R. Heleton was directly responsible for the work. Any community within the territory of this school wishing to establish a fair centre were asked to form a local committee to look after the details of the work as follows:

1. Select from eight to twenty-five schools to take part in the work.
2. Receive seeds and deliver same to the schools.
3. Raise money to finance prize list (other than that provided by the Department of Agriculture).
4. Make all local arrangements for the fair.

The School of Agriculture supplied the seeds, instructional circulars, mounting materials for plant and insect collections, entry tags, prize lists, prize tags, and a grant to the extent of \$25.00 for live stock prizes. A representative of the school went out to help in organizing and supervising on request, judges for the fairs were furnished by the school. The co-operation of the school inspector was secured at practically every centre. The work was begun April 1st and the last fair was held on October 10th.

The following classes of exhibits were shown: Garden products, grains, live stock, cooking, canning, sewing, arts and manual arts, penmanship, map drawing, and plant, weed and insect collections. The exhibits in all these classes were in most cases good and showed that a live interest has been taken in the work.

The boys received potato seed and the girls flower seeds, and each pupil had the choice of four of the following kinds of garden seeds: Carrots, beets, parsnips, peas, mangles and turnips.

At some of the centres the Canadian Bankers' Association through a local bank gave a special prize for beef calves and pigs.

Five of the fifteen fairs were held in conjunction with the agricultural fairs while the others were held separately. The latter were in practically every case more successful than the former. The joint fairs as a rule lacked proper accommodation for the school fair exhibits, and the popular attractions made it difficult to hold the attention of the pupils in the talks given by the judges following the awarding of prizes.

The exhibits would be very much more uniform and better if meetings at central points in each district could be attended and addressed by a domestic science and agricultural representative some time during each season. This would have the additional value of placing the school in closer touch with the people and in this way the work would be brought closer to them than it is now.

The following is a tabulation showing points at which fairs were held, together with data regarding each:

Fair Centre.	Date.	No. of Schools.	No. of Pupils Rec. Seeds.	No. of Pupils Exhibiting.	Total No. Exhibits
Three Hills	Sept. 9	11	198	173	500
Youngstown	Sept. 11	10	206	185	485
Chinook	Sept. 12	14	186	146	468
Consort	Sept. 15	12	165	153	476
Castor	Sept. 16	10	94	78	345
Leo	Sept. 17	11	182	179	638
Bowden	Sept. 19	12	210	183	346
Strathcona	Sept. 22	18	270	196	478
Clive	Sept. 23	7	144	120	586
Olds	Sept. 24	19	357	165	425
Didsbury	Sept. 26	11	111	50	200
Milnerton	Sept. 30	10	147	136	500
Sundre	Sept. 30	8	127	100	363
Trochu	Oct. 3	13	261	173	500
Stettler	Oct. 10	27	378	95	275
		193	3036	2131	6585

The total cost to the Government for these fifteen fairs amounted to \$2,097.30, making an average cost per fair of \$139.82. This cost included cost of seeds and all other materials furnished the various centres as well as expenses for organizer and judges.

Taking into consideration that the work was started late in the year, the dry season, the early frost, the bad weather for some of the fairs, and that the work was new in all but four of the centres very good results were obtained. It is planned to extend the work this year and with the bulk purchasing of seeds this can be accomplished without any additional expenses.

BOYS AND GIRLS' PIG CLUB

A request was made by Mr. F. H. Clark, manager of the Union Bank at Bowden for help in organizing a pig club at that point.

On the 21st, an organization meeting was held at Bowden Hotel. Mr. Holeton addressed this meeting of young people and parents, and explained the objects, aims, rules and regulations of the club and offered to look after the selection and purchasing of the pigs.

The club was then formed and boy and girl officers chosen. Mr. Clark, manager of the Union Bank, assumed the duties of manager and secretary of the club.

The orders for pigs were then placed and the following list of pigs were supplied:

No. of Pigs.	Breed.
19	Berkshires.
18	Poland Chinas.
8	Duroc Jersey.
4	Yorkshires.
21	Grades.

Of the pedigreed pigs three were boars and fifty-six sows and the average cost of \$18.98 each. The grades cost \$9.78 each.

The seventy pigs were taken by thirty-eight club members. The bank paid for the pigs, and took a note from each club member for six

months at six per cent. An insurance charge of \$1.00 per pig was added to the notes in the case of pure bred pigs to cover loss by death. Any balance not required in 1919 will be carried over to be used for the same purpose in 1920.

The pure bred pigs were all ear tagged and registered in the names of the boy and girl owners.

A number of these pure bred pigs were shown in the Banker's Competition at the Bowden Fair in September, and the growth and quality shown was very pleasing. With the foundation stock now at hand the Bowden Pig Club bids to be a successful organization in future years.

METEOROLOGICAL RECORDS.

These records have been taken daily at the Olds School of Agriculture for the past six years. In this work the maximum and minimum temperature, precipitation and sunshine are recorded. This information is recorded monthly to the Dominion Meteorological Branch, Toronto, Ontario.

MAGAZINE.

The Olds School of Agriculture is publishing a magazine again this year. For a few years the three Schools of Agriculture combined in publishing what was known as the "A. S. A." (Alberta Schools of Agriculture) Magazine. This arrangement made a large publication and gave a great deal of additional work to the school management at the point where the editing and printing was done. Accordingly, with the idea of having a small magazine it was decided to publish the "O. S. A." (Olds School of Agriculture) magazine. With this arrangement it is planned to omit all advertising space, to keep the size under fifty pages and to reduce to the minimum all the work pertaining to its publication.

J. S. GRISDALE,

Principal.

VERMILION SCHOOL OF AGRICULTURE.

STAFF.

Our present staff is as follows:

J. G. Taggart, B.S.A., Principal, Instructor in Science.
 N. S. Smith, B.S.A., Instructor in Agronomy.
 D. A. MacKenzie, B.S.A., Instructor in Animal Husbandry.
 J. K. MacKenzie, B.S.A., Instructor in Farm Mechanics.
 J. J. Loughlin, Instructor in English and Mathematics.
 G. W. Scott, Instructor in Poultry and Dairying.
 W. J. Moon, V. S., Instructor in Veterinary Science.
 Olive G. Lawson, Instructor in Home Economics.

FIELDS OF WORK.

The work of the school falls into three departments, namely, investigation, teaching and extension work.

INVESTIGATIONAL WORK

In 1919 more than 30 acres of land were devoted to experimental work with field crops, potatoes, small fruits, and soil fertility studies. Field crop experimental work has been continued along lines established in former years. The aim of this work has been to secure information regarding varieties and management of all standard farm crops.

Three new lines of work have been undertaken for the first time. These are: First, in co-operation with E. S. Hopkins in charge, soil investigations, studies in soil fertility, soil moisture and crop rotation; second, a series of experiments to determine the best methods of management of alfalfa and clovers; third, silage crop studies. The last work included experiments with sunflowers and various mixtures of the cereal grains.

The following facts from the meteorological record may be of interest:

Last spring frost, June 10.

First fall frost, Sept. 1.

Lowest temperature minus 50 on February 25.

Highest temperature 98 on June 20.

Total precipitation 9.105 inches.

Precipitation in May, June and July, 3.5 inches.

The rainfall was about five inches less than the average of the six preceding years. The shortage of rain as compared with the normal was all in May and June.

TEACHING.

During the winter of 1919 the school did not admit regular students on account of the prevalence of influenza. In February the epidemic had abated to such an extent that it was possible to hold short courses of two weeks duration in home economics and agriculture. The courses were attended by 65 men and 9 women.

By the middle of October there had been received applications for admission to the school from about 60 regular students. On account of an arrangement with the Soldier Settlement Board by which the school would be devoted to the training of returned soldiers, it was necessary to send the applicants for regular courses to the Olds and Claresholm schools.

On November 15th fifty returned soldiers entered on a three months course in agriculture with a view to qualifying for loans under the Soldier Settlement Act. These men have been working for farmers during the past summer under the supervision of the Soldier Settlement Board. The course of instruction for the soldier-students includes the following subjects: Field crops, soils, farm machinery and gas engines, carpentry, blacksmithing, animal husbandry, poultry, dairying. Twenty-three of the unmarried members of the class are taking special lessons in cooking.

EXTENSION WORK.

School Fairs.

During the year twenty school fairs were held under the direction of the school. The method of conducting these fairs was essentially the same as that followed in other years. One change was made, however, which made it possible to extend the work to more schools than formerly. At the various centres at which school fairs were held committees were organized to manage all local matters connected with the fair and to raise a part of the prize money.

The names of the fair centres together with the names of the secretaries follow:

Lloydminster	H. H. Huxley
Islay	Mrs. E. F. B. Maire
Paradise Valley	Mrs. V. G. Clay
Vermilion	S. D. Snyder
Mannville	L. H. Bennett
Vegreville	J. C. Butchart
Sunnyside	A. W. Foley
Stony Plain	M. B. McCall
Grand Prairie	E. S. Farr
Waterhole	E. S. Farr
Ryley	Miss Jessie Goodall
Kinsella	F. R. Surrey
Provost	W. W. Orr
Czar	Thomas Wilson
Amisk	O. G. Brooks
Hardisty	Walter Scott
Lougheed	H. W. Scott
Killam	H. W. Scott
Alliance	H. W. Scott
Daysland	A. A. P. McDowell

The total number of schools participating was 280; pupils, 3,600; exhibits displayed, 15,000. The exhibits consisted of garden vegetables, flowers, grains, live stock, cooking, sewing, canning, map drawing, art work and writing.

EXHIBIT AT EDMONTON FAIR.

At the Edmonton Exhibition, July 7-12, 1919, we displayed an exhibit for the purpose of bringing to the attention of the exhibition visitors the services which the school is prepared to render to the community. We also attempted to illustrate the work of the different departments of the school so as to give prospective students and others who might be interested, some idea of the work covered in our course.

MEETINGS AND JUDGING AT FAIRS.

In addition to judging at eighteen of the twenty school fairs held in our district, members of the staff judged at ten of the Agricultural Society Fairs. Members of the staff addressed eight agricultural meetings during the year. Miss Lawson, of our home economics staff, gave demonstrations or lectures to more than twenty women's institutes during the summer months.

The names of the students who have attended the courses in 1919 follow:

DEPARTMENT OF AGRICULTURE.

SHORT COURSES, FEBRUARY, 1919.

Ella M. Greensides	F. W. Scott
Muriel A. Telford	Yvonne M. de Delley
Gwendolyne D. Elliott	Ida K. Smith
Myra E. Young	Pearl Moses
Mary Cairns	Elva McKee
Roy Walker	H. E. Crain
L. J. Darrough	Geo. Allanach
J. Hagan	E. Brennan
T. Kehoe	T. McKeone
H. Wener	A. Woodworth
F. J. Reid	Rob. Alton
A. Pinchbeck	Mc Calla
W. Barnes	E. Rhodes
Rev. Wright	F. R. McCalla
J. Buchanan	Harry M. Smith
C. Stouffer	Shane
Ira Loterman	W. M. Steele
W. R. Flack	Wm. Williams
H. Campbell	Orbin Sproule
O. D. Anderson	J. B. Burch
D. M. Brown	J. H. Bell
T. Cairns	Mr. Parant
H. Puff	T. J. Kehoe
T. W. Howe	J. G. Riddle
J. R. Hilcox	J. Saville
M. Bolton	Wm. Porter
C. B. Brown	Bert Taylor
Manson Barr	Jacob Wener
Hubert Winter	D. W. Cash
J. A. Roseborough	Norman Taylor
Victor McKee	Leonard Alton
E. K. Glidden	L. Fouracre
Jack Tucker	A. P. Gould
Rev. Tyner	L. Yacorzynski
H. Bard	W. G. Guay
Peter McDermid	C. Demers
W. T. Kerr	

SOLDIER COURSE, NOV. 15, 1919—FEB. 18, 1920.

W. A. Adair	R. B. Manley
A. G. Bird	J. Moon
F. P. Broadbent	E. MacIntyre
J. H. Blackburn	M. C. Qua
O. Bishopric	B. O. Parker
W. Crawshaw	J. E. Purvis
J. M. Dennistoun	W. Sharpe
G. C. Deere	T. F. Sinclair
A. T. Faulds	M. F. Smith
J. W. Frost	P. Souillard
R. Gracie	G. F. Tawse
C. Girling	J. H. Wagge
S. P. Alford	H. G. Harvey
G. A. Anderson	N. A. King
W. R. Braithwaite	R. H. Ludbrooke
W. Birchmall	A. Robertson
F. T. Bradley	J. M. Rooney
J. Clark	C. Scutt
J. B. Coghill	H. A. L. Townend
H. J. Dery	E. S. Taylor
D. Duncan	R. Tilley
L. Gay	T. White
G. E. Hodson	G. Coull
B. Girling	J. McClintock
E. E. Ludbrooke	

Respectfully submitted

J. G. TAGGART.

Principal.

REPORT OF SOIL INVESTIGATIONS AT SCHOOLS OF AGRICULTURE

SIR.—I beg to submit herewith the annual report of the work done in soil investigations.

This branch of the Provincial Schools of Agriculture was established in the spring of 1919. Headquarters were taken at Olds. Laboratory facilities were secured, experiments were conducted at the Olds, Claresholm and Vermilion Schools of Agriculture.

This arrangement enables very satisfactory work to be undertaken. The linking up of laboratory and field investigations greatly improves the quality of scientific agricultural work. Moreover, the conduct of field investigations relating to soil problems at the various schools of agriculture makes possible the securing of information of greater value than could possibly be secured at one station alone. This point is very important because the majority of soil problems are local and methods which apply at one place may not apply at others. After many years of experience the Agricultural Experiment Stations in the United States have found it necessary to establish small experimental fields throughout each state in order to secure information that would apply to the various local districts. The Alberta system with co-operative fieldments throughout the province meets this condition admirably.

CO-OPERATIVE FIELD EXPERIMENTS AT THE SCHOOLS OF AGRICULTURE.

The co-operative field experiments included work with rotations, cultural methods, and applications of manure.

Definite experimental work is needed in Western Canada to learn what types of rotations are most successful in withstanding drought, in maintaining fertility, and in producing the greatest profit. Where the entire cultivated acreage is devoted to one crop, or even to two or three crops which mature at about the same season of the year, partial failure from drought is liable to occur. This is true not only in Western Canada, it is true in humid regions where the rainfall is not assumed to be a limiting factor, and if several crops of different habits of growth which mature at different seasons of the year were not grown in these regions, drought would cause just as serious losses as in Western Canada.

Several different kinds of rotations, varying in length from two to six years, are being tried at Olds, Vermilion and Claresholm. Some rotations are being tried which include grass, such as timothy, brome grass and western rye grass; other rotations are being tried which use legumes, such as alsike, red clover, sweet clover and alfalfa. Some rotations include two crops which are believed to be drought-resistant, such as winter rye and western rye grass, in an effort to secure some arrangement of cropping which will reduce to a minimum losses from drought.

Extensive experiments on cultural methods have been started. Experiments designed to learn the relative value of fall and spring ploughing, of deep and shallow ploughing, and of harrowing and packing land after ploughing, have been commenced at the three schools of agriculture.

Experiments have been commenced designed to learn the most effective methods of summerfallowing land. The object is to learn the best time to plow for the summerfallow; the best depth to plow and the kind of surface cultivation that should be given the land in order to conserve moisture and to produce maximum crops the following year.

Experiments have been started to learn the value of intertilled crops, such as corn, sunflower and potatoes, as a substitute in a limited way for the summerfallow. These crops are increasing in acreage in Alberta. They are fairly drought resistant, particularly the sunflower, and the object is to learn how the crop which follows them the next year will yield.

All experiments in rotations, cultural methods, and summerfallow compared with intertilled crops include accurate soil moisture determinations conducted throughout the season. This information, together with the yields, makes possible a more intelligent interpretation of the data secured.

The value of farmyard manure is being tested. Many farmers do not use their farmyard manure at all, allowing it to remain in heaps about the buildings. Experience in older settled sections indicates that manure is a valuable aid in increasing yields. Definite information will soon be available on this point.

ALBERTA SOIL VERY FERTILE.

A limited amount of analytical chemical work shows that the soils of Alberta are very fertile. Several samples of soil showed a content of nitrogen of about .4 per cent, which would make in one acre 8 inches deep about 10,000 lbs. of nitrogen. In the State of New York the average content of soil nitrogen is .18 per cent, which would make in one acre 8 inches deep only about 4,500 lbs. of nitrogen. Throughout Ontario and the Middle West the amount of nitrogen is not more than about one-half of that found in the soils of Alberta. A one hundred bushel crop of oats will remove from one acre of land approximately 100 lbs. of nitrogen; crops suffer from lack of nitrogen, or other elements, long before the supply is completely exhausted from the soil. Analytical work shows that the amount of organic material in the soil is far greater than in eastern soils.

EXPERIMENTS ON THE WATER REQUIREMENTS OF CROPS.

The chief limiting factor in crop production in Alberta is the supply of moisture. This problem may partly be overcome by a judicious selection of crops of various habits of growth which mature at different seasons of the year, and it may also partly be overcome by a selection of crops which are more economical in their demands on soil moisture. This latter phase of the question is also under investigation at Olds. This is a type of problem that cannot be undertaken as a field experiment owing

to the varying quantity of seasonal precipitation. It is absolutely essential to work under controlled conditions and to know exactly how much water various crops require for normal development. When certain principles become established and when it becomes known which crops are more economical users of soil moisture the information can then be applied in field experimental work. This experiment consists in growing various crops in large cans 15 inches in diameter, 30 inches deep and holding over 200 pounds of soil. The tops of the cans are covered to prevent access of rain or escape of evaporation and the water required by the crop is added through an opening in the top. By keeping account of the water used by crops it is possible to learn which have produced the greatest yield with a definite amount of water.

The following table gives the results secured in 1919 from a limited number of crops. Many other crops, such as brome grass, western rye grass, timothy, and winter rye are now in the cans and results from these will be reported in 1920. Additional figures are given in the table for similar work undertaken in Colorado and in Wisconsin in order that comparison may be made with these districts. The figures express the number of pounds of water required to produce one pound of dry matter of various crops.

Crop.	Alberta	Colorado	Wisconsin
Wheat	272	507	
Oats	306	611	541
Barley	227	539	388
Corn	178	369	350
Alfalfa	478	1068	
Sweet Clover	442	709	

The figures show that the water requirements are markedly less in Alberta than in the States farther south. This appears reasonable in the light of the fact that evaporation is very much lower in Alberta. Thus, while the evaporation from a free water surface in a tank 2 feet deep, for the growing season, April to September inclusive, in Colorado is about 45 inches, that at Olds, Alberta, is only about 20 inches. One inch of rainfall in Alberta, therefore, is better than two inches of rainfall in Colorado. Accordingly, figures which show the amount of rainfall should also show the amount of evaporation if they are to give a true indication of the value of the rain in producing crops.

The low water requirements of crops in Alberta is another strong proof of the agricultural value of the land. It lends confirmation to the view that the productive power of this land is superior to that of the older settled states and provinces.

The writer wishes to acknowledge the assistance of Mr. S. Barnes in the work at Olds, and of the co-operation of Mr. F. S. Grisdale, B. S. A., principal and agronomist of the School of Agriculture, Olds; Mr. J. G. Taggart, B. S. A., principal and instructor in science, School of Agriculture, Vermilion, and of Mr. W. J. Stephen, B. A., B. S. A., principal and agronomist, School of Agriculture, Claresholm.

E. S. HOPKINS, B. S. A., M. S.,

In Charge Provincial Soil Investigations.

REPORT OF BIOLOGICAL WORK OF SCHOOLS OF AGRICULTURE

SIR.—I have the honour to submit herewith the report of the Provincial Biologist for the year 1919.

In addition to work in bacteriology, botany, entomology, and horticulture of the biology department, instruction is given in the different branches of science to the students at the School of Agriculture, Claresholm.

INSTRUCTION IN SCIENCE.

Owing to the epidemic of Spanish Influenza, classes were not held in the school of agriculture in the spring of 1919. Classes were re-opened in the fall of 1919, and lectures were given to the students in botany, entomology, bacteriology, horticulture, chemistry and physics. In the spring of 1919 a short course was given at the School of Agriculture, Claresholm, to farmers and farmers' sons, at which instruction was given in weeds, weed seeds, and in horticulture.

BACTERIOLOGICAL WORK.

Cultures for the inoculation of different kinds of legume seed were grown at the Claresholm School of Agriculture, and supplied to the farmers of Alberta, British Columbia and Saskatchewan. These cultures were sent out from the first of April until the end of June. Eleven hundred and ninety-eight cultures were prepared in 1919 for the inoculation of alfalfa, field peas, alsike, sweet clover, red clover, crimson clover and white Dutch clover.

Several samples of water were examined to estimate the number and kinds of bacteria per cubic centimetre.

Several samples of milk were examined for the tubercular germ.

Several samples of blood and tissues were examined for blackleg and other germs.

WORK IN BOTANY.

A bulletin on weeds poisonous to livestock was prepared by Dr. P. R. Talbot, V. S., and myself. In the preparation of this bulletin a great deal of field work was carried on in various parts of Alberta. This bulletin has been prepared to give information required for the identification of the most dangerous poisonous weeds found in Alberta, viz.: Tall larkspur, low larkspur, death camas, water hemlock, white loco-weed, woolly loco-weed, and showy loco-weed, and to give the methods of handling to prevent stock from eating these weeds, and the symptoms and treatment of animals affected.

About four hundred weeds and other plants were sent by farmers and teachers to the school of agriculture, Claresholm, for identification. Methods of eradicating the weeds were given.

Plot experiments were carried on with various strengths of formalin for the prevention of stinking or bunt smut of wheat, covered smut of barley, naked smut of oats and covered smut of oats. Owing to the very dry weather which continued during the whole of the growing season, satisfactory results were not obtained.

Plot experiments were carried on in connection with the prevention of scab of potatoes. Various strengths of the following fungicides were used: formalin, bichloride of mercury, copper sulphate, and potassium permanganate. Of these solutions one ounce of bichloride of mercury to 11.84 gallons of water gave the best results. The time of immersion in each case was three hours.

Instructions in connection with school fair work were given in the alum-bath method of mounting plants for the preserving of the natural colours of flowers, leaves and stems.

WORK IN ENTOMOLOGY.

About three hundred specimens of insects were identified for farmers, teachers and others. Methods of controlling them were given. Those which caused greatest injury to vegetables, grains, and other plants, were cutworms, potato-beetle, western blister-beetle, sugar-beet, web-worm, aphids, spruce mite and red turnip beetle.

In connection with school fair work, instructions were given in the making of insect collections.

WORK IN HORTICULTURE.

Experiments were carried on in connection with the growing of perennial flowers from seed, and the growing of trees and shrubs from cuttings and seeds.

Lectures on horticulture and weeds were given at institute meetings.

Respectfully submitted,

J. C. HOOPER,

Provincial Biologist.

REPORT OF THE DEMONSTRATION FARMS

SIR.—I beg to submit herewith a report of the Provincial Demonstration Farms for 1919.

The crops on the Demonstration Farms for the past year have in most cases been very light owing to the severe drought, especially in the southern and eastern parts of the province. The spring season opened up fairly early and the land made a beautiful seed bed, the grain germinating well and making a good start. Prospects were bright, but owing to the previous dry years the land did not contain any reserve moisture. The dry hot winds of June and July soon evaporated the small amount of moisture in the soil and the continued lack of rain in some parts of the province resulted in a total crop failure. The rain of August added the needed moisture in some localities and the crops improved. This may be said of the Sedgewick farm, where conditions looked very unfavorable early in the season but with the needed moisture there was a fair crop of wheat, oats and greenfeed. The barley and hay were very light as the rain came too late to help these crops.

On some of the farms in the central part of the Province, such as Olds, Stony Plain, Athabasca, the crops did fairly well. Although the straw was short the yields of oats and barley were fair. The hay crop at these farms was light also.

At the Gleichen farm hail destroyed the oat crop but the second growth made a fair crop of green feed, helping the feed situation. On the Claresholm farm crops on summerfallow and other cultivated land gave a yield of 28 bushels per acre of oats, which would show what the lack of moisture means.

ALFALFA.

On several of these farms, including Sedgewick, Medicine Hat and Claresholm, alfalfa in small acreage has been grown. This year, owing to the dry season, this crop at the Medicine Hat farm was a failure. Alfalfa did not do well at the Sedgewick farm either, but at the Claresholm farm it made a good start. The dry weather checked its growth and although it was a light crop it made good hay. At the Gleichen farm ten acres were seeded to alfalfa and twenty acres more will be added in 1920. As it can be irrigated at this farm it is hoped to have good returns from it.

SWEET CLOVER.

There has not been much of this kind of clover grown on the farms except at Sedgewick, where two acres had been seeded, but owing to soil drifting the young plants were destroyed. Four acres have been reseeded, and with a favorable year it is expected that there will be something further to report. A small acreage has been added also at the Claresholm and Olds farms.

FALL RYE.

Fall rye is used to great advantage in some parts of the province. Not only does it help with the early pasture but where soil drifting is prevalent fall rye is a good preventative as it covers the ground in the early spring and prevents the wind from drifting the soil. This crop should be sown the latter part of August. The land must be properly prepared and the crop should not be pastured too close in the fall. It can be pastured early in the spring before tame grass and prairie grass are ready for pasture and after pasturing a few weeks the stock can be taken off and it will give a fair return in threshed grain. On the demonstration farms the acreage has been increased so that there will be early pasture and also an acreage for threshed grain.

CORN.

The corn crop did not do very well on the farms this past season owing to the lack of moisture with the exception of Athabasca. Here it did exceedingly well, reaching a height of from 6 to 7 feet with ears maturing fit for table use. This was unusual for this district, which is sometimes late.

Corn land should be ploughed in the fall and worked well to make an even surface so that the land can be manured during the winter months. This is not only beneficial but will lessen the cost of labor as this work can be done before the busy time in the spring. The manure should be mixed thoroughly with the soil and the corn planted in hills or in rows so that it can be cultivated often to conserve moisture and promote growth.

TURNIP CROP.

Turnips are grown on most of the farms but during the past season the cutworm destroyed the early seeding and when reseeded the very dry weather was not favorable and as a result the crop proved a failure at most of the farms.

RAPE.

Rape has been grown successfully on the farms during the past year. This crop did well and although the season was dry it made good pasture for sheep and hogs. At most of the farms the acreage is being increased so that there may be plenty of succulent pasture during the summer months for sheep, hogs and cattle, but it does not appear to be a good practice to enclose sheep or cattle on rape alone. They should have access to grass pasture besides.

SEED GRAIN.

It has been an important service on the Demonstration Farms to supply the farmers of the province with good seed grain from these farms, but owing to some of the farms having light crops it will not be possible to carry out these plans for the 1920 spring season. There is on hand only a limited amount of seed grain which will be needed for the Demonstration Farms themselves where drought was prevalent, but it is expected that the farms will be able to supply the farmers with good seed grain during favorable seasons from the following varieties: O. A. C. 21 barley, Marquis wheat and Banner oats.

At the Stony Plain and Medicine Hat farms where the main operation is dairying it was very difficult to keep up the flow of milk because of the dry weather but the Holstein herd at the Stony Plain farm did very well. The following are a few of the yearly records:

	Milk	B. F.	Dys.
Queen Mercedes De Kol, 2 yrs. old	14201.9	438.5	351
Vrouka Mercedes, Mature	12424	411.8	289
Julia Korndyke, Mature	10092.5	298	242
Vrouka Dione, Mature	9487.9	246.6	287
JERSEYS—			
Minnie Arcola	6523.6	358.3	284
Gipsy Sultana	5393.2	299.5	300

Respectfully submitted,

D. DOUGLAS,

Farm Director.

SCHOOLS OF AGRICULTURE AND DEMONSTRATION FARMS STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR THE YEAR 1919.

DISBURSEMENTS

Expenditure 1919 as per public accounts	\$120,912.36
Less 1918 accounts paid in 1919	2,062.22
	\$118,850.14
Add 1919 accounts earned to 1920	595.70
Cost of operation in 1919	\$119,445.84

ANALYSIS OF COST OF OPERATION

Wages and salaries	\$74,807.44
Feed, binder twine, seed	12,333.63
Coal	2,441.92
Insurance	946.27
Threshing	1,587.09
Hardware	4,600.75
Telephones and telegraph	1,063.65
Drugs and veterinary	667.63
Lumber	564.50
Gas, oil and repairs for stationary engines and cars	2,773.25
Blacksmith	479.15
Machinery repairs	1,601.88
Equipment	2,302.43
Rent of land	191.00
Travelling expenses, etc.	5,169.55
Baggage on milk	399.06
Painting houses	750.00
Freight	60.95
Postage	100.00
Advertising	2,125.22
Printing and stationery	1,819.36
Sundries	3,261.11
	- \$119,445.84

DETAILS OF REVENUE FOR 1919.

Sale of milk	\$ 8,232.44
Sale of cattle	11,631.00
Sale of horses	268.00
Sale of sheep	815.66
Sale of wool	866.51
Sale of hogs	3,624.47
Sale of poultry and eggs	553.61
Sale of grain	3,796.79
Sale of feed	120.00
Sundry revenue	1,833.00
	\$ 31,741.49



PURE-BRED PERCHERON MARES ON THE "BAR U" RANCH.

REPORT OF THE SUPERINTENDENT OF FAIRS AND INSTITUTES

SIR.—I have the honour to submit herewith the report of the Superintendent of Fairs and Institutes for the past year.

EXHIBITIONS AND FAIRS.

Ninety-seven fairs were held during the fall of 1919 and, with a few exceptions, were quite successful. This is the largest number of fairs ever held in one season in Alberta. Eleven societies cancelled their fairs in advance owing to the somewhat dry weather which prevailed during the summer and the consequent lightness of crops in their respective districts, most of which were in the southern part of the province.

About twenty-five to thirty of the fairs were highly successful, the exhibits, the competition, the management and the attendance being all quite above the ordinary. There seems to be a strong tendency for the really good fairs to become better each year and the poorer and smaller fairs to become still poorer. This fact supplies proof, if such were needed, that we have too many fairs in Alberta. Wherever there has been manifested a spirit of co-operation and enthusiasm among the members and directors of the society the most beneficial results have naturally followed.

Next to the exhibitions at Calgary and Edmonton, both of which were better and more popular than ever, Lloydminster had probably the best and most successful fair of the past season, followed by Red Deer, Camrose, Sedgewick, Vermilion, Stony Plain, Lacombe, Wetaskiwin, Berry Creek, Milnerton, Stettler, Delia, Munson, Oyen, Daysland, Taber, Ponoka, Lamont, Chauvin, Coronation, Colinton, Lousana, Viking, Bushy, Provost, and a few other places. Several of these fairs had wet weather to contend with, so that their success is all the more creditable.

The ten poorest fairs were held at Czar, Langdon, Alix (those three being practically failures), Okotoks, Morinville, Veteran, Irvine, Athabasca, Edson and Richdale. It is but right, however, to mention that a number of fairs were held during harvest time—the season being a week or two earlier than usual. This naturally affected adversely both the attendance and the exhibits at those places.

A new classification for the benefit chiefly of the smaller societies and to insure greater uniformity in prize lists, was issued last year and circulated among all the societies. It is to be hoped that this new classification, which was prepared by a committee selected by the Agricultural Fairs Convention, will be generally adopted and prove beneficial, as it doubtless will.

The judges succeeded in giving excellent satisfaction at all the fairs—complaints on this score being even rarer than usual. One remarkable feature in this connection is that the very youngest judge employed—a

youth of eighteen summers—received more requests to come back and judge again than any of the older and more experienced judges. This is surely a hopeful sign of the future.

THE CALF AND BABY BEEF COMPETITION.

Very excellent and interesting exhibits were again held at Edmonton in April, and at Calgary Winter Fair in December. There were fewer entries than the previous year but the general average in quality was much higher, there being in fact hardly any "tail ends" at all. This competition is becoming increasingly popular from year to year and will doubtless continue to be more attractive and beneficial as years go by.

POULTRY SHOWS.

Highly successful poultry shows were held at Calgary, Edmonton, Wetaskiwin, Red Deer, Lethbridge, Medicine Hat, and several other places. The judges who officiated at these shows were George Woods, of Winnipeg, Manitoba; L. G. Jarvis, of Grimsby, Ontario; Wm. Stonehouse, of Vancouver, B. C.; Tom Wilkinson, of Chase River, B. C.; H. A. Ross, of Lathom, Alberta; E. N. Barker, of Cardston, Alberta; Jos. Haden of Calgary; M. Ross Wallace, of Calgary; J. H. Westbrook, of Lethbridge; I. H. Emmerson, of Lethbridge, and V. T. Richards, of Edmonton.

HORTICULTURAL SHOWS.

These were held at Calgary, Edmonton, Red Deer, Lethbridge, St. Albert, Bellevue, Magrath, Neerlandia and Medicine Hat, and all have been favourably reported on.

EDUCATIONAL WORK.

Owing to the prevalence of influenza and its serious consequences the last two winters, no short course schools were held, and the number of institutes has been generally limited to the requisite two meetings held by each society to qualify for the membership grant.

NEW SOCIETIES.

Agricultural societies have been formed during the past year at Donnelly, Matziwin (Brooks), Starland (Rowley), Ribstone (Czar), and Rochester. All these societies except Rochester holding initial fairs during the season.

Respectfully submitted,

ALEX. GALBRAITH,

Supt. of Fairs and Institutes.

LIST OF ALBERTA AGRICULTURAL SOCIETIES AND SECRETARIES WITH
DATES OF FAIRS IN 1919.

SOCIETY.	DATE OF FAIR.	SECRETARY.	ADDRESS.
Alix	August 6	W. L. Pottet	Alix.
Bashaw	September 12-13	A. J. Frank	Bashaw.
Benalto	July 29	F. T. McKee	Benalto.
Berry Creek (Panda)	September 10	L. E. Helmer	Nateby.
Big Valley	August 22-23	F. C. Stokes	Big Valley.
Bowden	September 19	Mrs. W. A. Hills	Bowden.
Bow Valley (Bassano)	September 16-17	E. A. Beck	Bassano.
Busby	September 16	W. A. Elliott	Busby.
Bye-Moor (Hartshorn)	September 9	Leonard Brown	Hartshorn.
Castor	August 14-15	O. W. Colley	Castor.
Chauvin	August 4	F. H. Perry	Chauvin.
Chinook	August 7-8	Miss M. E. Rogers	Chinook.
Claresholm	July 29-30	J. R. Watt	Claresholm.
Cochrane	September 18-19	Robert Hogarth	Cochrane.
Consort	August 20-21	Mrs. C. E. Holmes	Consort.
Coronation	August 12-13	R. T. Cunliffe	Coronation.
Crossfield	June 25-26	W. Hazard	Crossfield.
Daysland	August 12-13	A. A. P. McDowell	Daysland.
Didsbury	September 25-26	J. V. Berscht	Didsbury.
Donalda	August 4-5	George Lowry	Donalda.
Donnelly	September 23	A. B. Cote	Donnelly.
Durlingville & Bonnyville (Bonnyville)	September 9	I. D. Handfield	Bonnyville.
Eastern Alberta (Provost)	August 6	S. E. Burgess	Provost.
Edgerton	August 16	N. Davidson	Edgerton.
Edson	September 5	J. Leyden	Edson.
Elk Point	September 5-6	H. J. Ramsbottom	Elk Point.
Fort Saskatchewan	September 2-3	G. T. Montgomery	Ft. Saskatchewan.
Gleichen	August 15-16	Peter MacLean	Gleichen.
Grand Prairie	September 17-18	P. M. Bezanon	Grande Prairie.
Griffin Creek	September 9-10	Robert Little	Griffin Creek.
Hanna	August 13	C. R. Krater	Hanna.
Hays (Lousana)	September 10-11	Wm. E. Little	Lousana.
Highland (Delia)	August 14	J. P. McBeath	Delia.
High River	July 17	A. V. Miller	High River.
Holden	September 18	A. G. Brown	Holden.
Innisfail	September 17-18	W. G. McArthur	Innisfail.
Innisfree	September 8-9	W. J. Reid	Innisfree.
Irma	August 15	F. W. Watkinson	Irma.
Irvine	August 7	F. G. McLaughlin	Irvine.
Kitseoty	September 15	T. H. Currie	Kitseoty.
Lacombe	July 24-25-26	S. H. Welch	Lacombe.
Lake Saskatoon & Beaver Lodge	September 19-20	W. H. Watts	Lake Saskatoon.
Lamont	August 20	G. R. Stewart	Lamont.
Langdon	August 14	Wm. Alcock	Langdon.
Leduc	September 16-17	A. R. Ennis	Leduc.
Lloydminster	July 21-22-23	H. Huxley	Lloydminster.
Lomond	July 31	Rae L. King	Lomond.
Macleod	August 6-7	R. J. E. Gardiner	Macleod.
Magrath	August 15-16	Ed. Hodges	Magrath.
Mannville	September 10	C. B. Wood	Mannville.
Matziwin (Brooks)	September 12-13	Don H. Bark	Brooks.
Mid-Pembina (Dunstable)	September 12	A. D. Gilmer	K. E. Box, R.R. No. 1, Ex. Busby.
Milnerton	September 30	J. H. McArthur	Knee Hill Valley.
Morinville	August 22-23	J. B. Dalphond	Morinville.
Mossidae	September 23	C. H. Hurst	Moss-side.

SOCIETY.	DATE OF FAIR.	SECRETARY.	ADDRESS.
Munson	August 15	L. C. Jackson	Munson.
Nakamun & Sion Dis- trict (Sion)	September 9	J. B. Nixon	Sion.
North Alberta (Col- inton)	August 26	N. O. Jack	Colinton.
Okotoks	July 15	E. A. Hayes	Okotoks.
Olds	September 23-24	R. B. Campbell	Olds.
Onoway	September 10	H. A. Alsop	Onoway.
Oyen	August 4-5	C. S. Wright	Oyen.
Paddle River (Barr- head)	September 18	Mrs. H. D. Burch	Glenreagh.
Peace River	July 17-18	D. J. Johnston	Peace River.
Ponoka	July 23	Geo. E. Clark	Ponoka.
Priddis & Millarville (Priddis)	October 4	H. D. Wheeler	Priddis.
Raymond	August 12-13-14	S. F. Kimball	Raymond.
Red Deer	July 14-15-16	J. E. Welton	Red Deer.
Ribstone (Czar)	August 7	C. J. Loughy	Czar.
Richdale	August 6-7	A. T. Penwarden	Richdale.
Rocky Mountain Ho. Sedgewick	September 22-23	G. T. Thomson	Rocky Mtn. House.
Sibbald	August 7-8	V. W. Messenger	Sedgewick.
Spirit River	August 2	C. O. Dudley	Sibbald.
Starland (Rowley)	September 16	D. J. Esplen	Spirit River.
Stavelly	August 26	A. C. Smith	Rowley.
Stettler	August 12-13	J. F. Rea	Stavelly.
Stony Plain	August 7-8-9	G. T. Day	Stettler.
St. Paul	August 21	Wm. Robertson	Stony Plain.
Strome - Killam (Strome)	September 3	Ernest Cloutier	St. Paul.
Swalwell	August 14	R. J. McGowan	R.R. No. 1, Killam.
Taber	July 17-18	F. B. White	Swalwell.
Tofield	July 28-29-30	W. C. Blount	Taber.
Trochu	September 17	Mrs. Peter Lee	Tofield.
Vegreville	October 2-3	R. H. Slipp	Trochu.
Vermilion	September 5-6	Robert Wilson	Vegreville.
Veteran	September 11-12	Job Mace	Vermilion.
Viking & Birch Lake District (Viking)	August 19	C. P. Garvey	Veteran.
Waterhole	September 19	Wm. McAtthey	Viking.
Westlock	September 11-12	H. M. Bailey	Waterhole.
Wetaskiwin	September 20	A. R. Brown	Westlock.
Winnifred	July 21-22	R. N. Shaw	Wetaskiwin.
Youngstown	August 5-6	G. R. McKee	Winnifred.
	August 11-12	Eli Good	Youngstown.

EXHIBITION ASSOCIATIONS.

Athabasca	August 28-29	C. H. Pratt	Athabasca.
Calgary	June 28-July 5	E. L. Richardson	Calgary.
Camrose	July 17-18-19	J. D. Saunders	Camrose.
Edmonton	July 7-12	W. J. Stark	Edmonton.

The following are the names and addresses of judges who officiated at the fairs and exhibitions during the past season:—

<i>Name and Address</i>	<i>Classes Judged</i>	<i>List of Fairs</i>
Wm. Sharp, Lacombe, Alberta	Cattle	Red Deer, Wetaskiwin, Oyen, High River, Swalwell, Hanna, Sibbald, Richdale, Chinook, Youngstown, Munson, To- field, Rocky Mountain House, Delia, Holden and Viking.
R. D. Sinclair, Innisfaul, Alberta	Cattle	Red Deer, Camrose, Lacombe, Crossfield, and Claresholm.

<i>Name and Address</i>	<i>Classes Judged</i>	<i>List of Fairs</i>
E. W. Bjorkeland, Red Deer, Alberta	Cattle	Camrose, Benalto.
Herb. Smith, Camrose, Alberta	Sheep	Red Deer, Vermilion.
T. Rawlinson, Innisfail, Alberta	Horses	Crossfield, Wetaskiwin, Oyen, Ponoka, Lacombe, Youngstown, Benalto, Sib- bald, Richdale, Chinook, Pandora, Priddis, Hanna, Delia, Munson, Olds, Didsbury, Brooks.
B. R. Roberts, Vegreville, Alberta	Cattle	Vermilion.
James Clements, Edmonton, Alberta	Horses	Crossfield.
R. G. Logan, Edmonton, Alberta	Horses	Macleod, Daysland, Strome.
W. J. Stephen, Claresholm, Alberta	Cattle	Macleod, Raymond, Taber.
G. Hutton, Sr., Lacombe, Alberta	Cattle	Stavely, Langdon, Winnifred, Gleichen, Dunstable, Irvine, Paddle River, Ono- way, Bushy, Westlock, Mossids, Sion.
G. R. Brewster, Claresholm, Alberta	Horses	Raymond.
James Liddell, Lougheed, Alberta	Horses	Donalds, Coronation, Castor, Colinton, Athabasca, Bashaw, Hartsborne, Lous- ana, Bowden, Stettler, Innisfail, Leduc, Alix.
A. Lougheed, Bowden, Alberta	Cattle	Donalds, Coronation, Castor, Stettler, Lousana, Bassano, Cochrane, Bashaw, Castor, Alix and Hartshorn.
John Wilson, Innisfail, Alberta	Cattle	Wetaskiwin, Sedgewick, Olds, Lacombe.
Wm. Wilson, Innisfail, Alberta	Cattle	Ponoka, Lomond, Athabasca, Colinton, Daysland, Didsbury, Chauvin, Provost, Strome, Czar, Taber.
James McCaig, Edmonton, Alberta	Sheep	Lacombe, Camrose.
W. S. McKinnon, Olds, Alberta	Horses	Okotoks, High River, Chauvin, Swalwell, Sedgewick, Provost, Stony Plain, Mor- inville, Milnerton, Bassano, Cochrane, Lamont.
A. G. Eadie, Edmonton, Alberta	Cattle and Horses	Okotoks, Peace River.
J. A. Gaudin, Stettler, Alberta	Horses	Claresholm, Gleichen, Stavely, Winnifred, Big Valley, Irvine, Langdon, Vermil- ion, Milnerton, Lomond, Didsbury, Veteran, Trochu, Consort, Priddis, Rowley, Durlingville, St. Paul, Elk Point.
J. H. McArthur, Knee Hill Valley	Cattle	Veteran, Consort, Brooks, Big Valley.
J. Vance, Edmonton, Alberta	Horses	Rowley, Tofield, Dunstable, Holden, Viking, Edson, Sion, Onoway.
J. G. Taggart, Vermilion, Alberta	Horses	Edgerton, Ft. Saskatchewan, Vegreville, Innisfree, Irma, Mannville, Kitscoty, Viking.

D. McKenzie, Vermilion, Alberta	..Cattle	Edgerton, Ft. Saskatchewan, Vegreville, Innisfree, Irma, Mannville, Kitseoty.
J. G. Clark, Clark Manor, Alta.	..Horses	Czar.
J. Chas. Yule, Carstairs, Alberta	..Cattle	Morinville, Innisfail, Trochu, Lamont, Stony Plain, Bowden, Milnerton, Leduc.
T. Heath, Lougheed, Alberta	..Horses	Busby, Paddle River, Westlock, Mosside.
W. R. Lowes, Edmonton, Alberta	..Horses	Griffin Creek, Waterhole, Spirit River, Grande Prairie, Lake Saskatoon, Don- nelly.
Dr. McPherson, Edmonton, Alberta	..Cattle	Griffin Creek, Waterhole, Spirit River, Grande Prairie, Lake Saskatoon, Don- nelly.
Wm. McKirdy, Napinka, Manitoba	.. Clydesdales	Edmonton.
Wm. McKirdy, Napinka, Manitoba	.. Draft horses	Red Deer.
Robert Graham, Toronto, Ontario	.. Percherons	Edmonton.
Frank Brown, Carlton, Oregon	.. Shorthorns	Edmonton.
Prof. A. A. McDowall, Edmonton, Alberta	.. Aberdeen-Angus	Edmonton.
W. T. McDonald, Victoria, B.C.	.. Dairy Cattle	Edmonton.
John Wilson, Innisfail, Alberta	.. Sheep	Edmonton.
W. J. Elliott, Calgary, Alberta	.. Swine	Edmonton.
Hugh McLean, Arcola, Sask.	.. Clydesdales	Calgary.
Dean C. F. Curtiss, Ames, Iowa	.. Percherons	Calgary.
Dean C. F. Curtiss, Ames, Iowa	.. Herefords	Edmonton.
R. P. Stericker, Chicago, Illinois	.. Hackneys and harness horses	Calgary.
R. P. Stericker, Chicago, Illinois	.. Saddlers and harness horses	Edmonton and Red Deer.
R. P. Stericker, Chicago, Illinois	.. All horses	Camrose.
Sammel Heap, Macleod, Alberta	.. Saddlers and Thoroughbreds	Calgary.
Frank Bellows, Marville, Mo.	.. Shorthorns	Calgary.
J. C. Kinzer, Kansas City, Mo.	.. Herefords	Calgary.
O. V. Battles, Yakima, Wash.	.. Aberdeen-Angus	Calgary.
G. H. Hutton, Calgary, Alberta	.. Dairy Cattle	Calgary.
A. J. McKay, Macdonald, Man- itoba	.. Sheep	Calgary.
Prof. Wood, Winnipeg, Manitoba	.. Swine	Calgary.

REPORT OF THE SUPERINTENDENT OF WOMEN'S INSTITUTES

SIR,—I beg to submit herewith a report of the Women's Institute Branch for the year 1919:

The record of the Women's Institutes of Alberta for the past year is very encouraging, not only because of the increased membership, and there has been a steady growth in almost all of the institutes, but because of the many indications that the main purposes for which the organization exists are being fulfilled.

The policy adopted by the Women's Institute Branch for the year 1919, was to strengthen and enlarge existing institutes rather than encourage the formation of new branches. The result has been most satisfactory, 3,900 new members having been enrolled, thus bringing the total membership up to 13,150. Thirty-two branches were also organized, making a total of 265 institutes.

DEMONSTRATION AND LECTURE WORK.

A keen appreciation has been shown of the services of the staff of lecturers and demonstrators sent out by the superintendent's office, when practically every institute in the province was visited.

Owing to the anticipated return of the Spanish Influenza it was thought advisable that instruction in home nursing and the care of the sick be given to as many institutes as were prepared to receive it. Consequently, short course schools in home nursing and first aid were given at fifty-four centres throughout the province, with a total attendance of 3,109 women. The nurses in charge of this work were Misses Gimby, Elsey, Thurston, Grosbie, Brighty, Runians and Clark, who are provincial public health nurses.

Sewing demonstration-lecture courses were also given at twenty-one centres, and short courses in cookery and food values at sixteen. One hundred and sixty-eight institutes were also visited and addressed by institute speakers. A great variety of work was included in these lectures. Among the subjects treated were the following:

- "Rural Sociology."
- "Legal Status of Women and Children in Alberta."
- "Civics."
- "The New Citizen."
- "Institute Work and Club Programmes."
- "Co-operation between Institutes and Public Schools."
- "Parents and Teachers' Associations."
- "Hot School Lunches."
- "Organized Recreation."
- "Child Welfare."
- "Public Health."
- "Medical Inspection of Schools."
- "Municipal Hospitals."

"Hygiene and Sanitation."
"Home Care of the Sick."
"Diet in Disease."
"Value of Milk and Vegetables in the Diet."
"Canning of Vegetables, Fruits and Meats."
"Interior Decoration."
"Community Singing."
"Birds of Alberta."
"Poultry-raising."
"Gardening."

The total attendance at lectures and demonstration-lecture courses was 21,000 women.

ANNUAL PROVINCIAL CONVENTION.

Something of what the Women's Institute movement means in our province may be glimpsed from the fact that delegates journeyed six hundred miles from the Peace River Country to Calgary to attend the fifth annual convention held in that city, March 11th to 14th.

Six hundred women came to Calgary for four days of inspiration and genuine recreation—not to speak of the eleven girls who were the fore-runners of the great army of girls who are soon to be enrolled in the Women's Institute Girls' Clubs, from which it was apparent that the first aid had been of common interest among them, and in most cases a practical incentive to organization. The unanimous expression of those who attended the convention was that it was the very best and largest convention of Alberta women that has ever been held in the province. At every session the auditorium of the church in which the meetings were held was filled to capacity.

This convention was unlike other women's institute conventions in that there was a splendid representation of city women. It was a symbol of an organized, united medium of farm, small town, and city women, and it marked an epoch in the women's movement in Alberta. On every hand was expressed the desire to become better acquainted with each other, and through the various discussions, the various speeches of welcome, and the rousing reception given not only by the city of Calgary itself, but by the various Women's Clubs, and by the business men of the city, a splendid united spirit had birth. As relaxation from the mental efforts of listening to inspirational addresses, the programme provided for many beautiful musical numbers, and by the courtesy of Mr. J. F. Price, of the Allen Theatre, the delegates spent a delightful two hours in witnessing the screening of "Little Women." The reception tendered by the Local Council of Women, through the kindness of the city council, gave opportunity of much "getting acquainted." There were other functions at which the officers of the Alberta Women's Institutes were guests of honor, given by the Canadian Club, Press Club, and the Daughters of the Empire—all expressive of the great spirit of unity.

Stettler constituency was the lucky winner of the \$50.00 prize for increased membership, 250 new members being enrolled. The second prize of \$25.00 was awarded to Olds constituency, having an increase of 194 members. For the \$50.00 and \$25.00 prizes for the increase of branches, Acadia and Ribstone tied with four new branches—\$37.50 being awarded to each.

The slogan of the past year was "Save the Baby" and child welfare work monopolized the attention of most of the organizations. At one side of the auditorium in which the sessions were held there hung a banner inscribed: "A Square Deal for Alberta Children," and passing under this banner the delegates found a most interesting and practical exhibition of model meals and school lunches for children of all ages, a model play ground equipment, a model layette demonstrating the latest and most scientific methods of dressing a new baby and comparing it with the old-fashioned way, also charts, bulletins and other material of practical value to mothers.

The provincial officers and conveners of standing committees elected for the year 1919 were as follows:

President—Miss Isabel Noble, Daysland, Alberta.
 First Vice-President—Mrs. Wm. Fleming, Alliance.
 Director, Northern District No. 1—Mrs. Jas. Boyd, Vanreana.
 Director, Northern District No. 2—Mrs. C. A. Gates, Stony Plain.
 Director, Central District—Mrs. A. A. Towns, Coronation.
 Director, Southern District—Mrs. F. Hughes, Cavendish.

Provincial representatives on the standing committees of the Federal Women's Institutes of Canada and Provincial conveners of standing committees:

Household Economics—Miss B. McDermand, Edmonton, Alberta.
 Child Welfare and Public Health—Mrs. D. R. Melvor, Cowley, Alberta.
 Education—Mrs. F. Aylesworth, Olds, Alberta.
 Legislation—Mrs. H. J. Montgomery, Wetaskiwin, Alberta.
 Immigration—Mrs. Wm. Barss, Delia, Alberta.
 Publicity—Mrs. J. F. Price, Calgary, Alberta.

The delegates considered and moved many important resolutions. The sentiments expressed by the resolutions condemned the Daylight Saving Act; asked for free scholarships to agricultural schools; recommended supervised play in all rural schools; that women receive equal pay with men for equal work, and that the matter of nurses' training be looked into so that the course be made as attractive as possible (a suggested course of training was outlined); petitioned for equal parental rights, provincial divorce courts and that women have the right to become candidates for the house of commons; condemned the policy enunciated by the Women's War Conference and the National Council of Women that the women's organizations should act in an advisory capacity to departments of the Federal Government, as it is not in keeping with the dignity of the government to consult with the public generally or organizations of either sex, and because women should have an integral share in the government of Canada rather than being merely advisers thereto.

WOMEN'S INSTITUTE CONSTITUENCY CONFERENCES.

There were nineteen constituency conferences held during the year. Each one of these conferences marked a red letter day in the history of the district and constituency institute work. In many instances the delegates and institute members devised schemes which co-ordinated the work of the institutes, thereby strengthening their worth and influence. Many different types of work have been taken up by the constituency organizations. One constituency has determined to send ten girls from

their constituency to the Olds Agricultural College; another constituency has made plans to furnish all schools in their district with bubble fountains.

These constituency conferences have provided a splendid means of developing leadership; the talents of many capable women are no longer lost to the community.

WOMEN'S INSTITUTE FOOD EXHIBITS.

An important feature of the work of the Alberta Women's Institutes for 1919 was its campaign for the proper feeding of children. This was carried out by food exhibits shown at the annual convention and at the fairs held in Edmonton and Calgary. A display was arranged of portions of many kinds of food containing equal values in calories, protein, iron, phosphorus and calcium. Proper menus for children of different ages were included in the exhibit. Considerable space was given to school lunches. To follow up the campaign, food cards for children of different ages were issued.

BULLETINS, LOAN COLLECTION AND TRAVELLING LIBRARIES.

Suggestions and help in the form of bulletins, travelling libraries, etc., have been furnished the institutes, and assistance in the preparation of papers and addresses have also been given through the medium of our "Loan Collection." The material in this collection covers a wide field of subjects and is at the disposal of all members of the institutes. The following bulletins have also been distributed:

- 6,000 copies of "Canning of Meat, Vegetables and Fruit."
- 30,000 copies of "Proper Feeding of Children."
- 4,000 copies of "Suggestions for the Health of Children."

RELIEF WORK.

It would be difficult to give any adequate idea in terms of dollars and cents of the immense amount of comfort and relief for the settlers in the drought areas, that the members of the Alberta Women's Institutes have so unstintingly supplied through the medium of the Women's Institute Relief Depot, Calgary. Heavy coats, suits, and dresses, woolly teques, mufflers and mittens, bolts upon bolts of flannel to be made into undergarments, and stockings and shoes by the hundreds to keep the little folk warm on their long tramps to school through the deep snow have been shipped from this depot.

2585 persons of 161 families have been supplied with complete outfits of clothing. These were sent in 521 sacks on which all charges were prepaid so that the goods reached those in need without a particle of expense to themselves.

One feature of the relief work accomplished by the Alberta Women's Institutes was the large number of layettes supplied by the relief depot for the wee babies in those districts where the need was most urgent. Had it not been for the many hundreds of tiny garments donated by the institute members, many a new citizen in the Province of Alberta would undoubtedly have found a very scanty wardrobe awaiting him on his arrival.

In addition to over \$3,600.00 worth of new garments purchased from the wholesalers from money contributed, no less than 22,012 garments were distributed by the depot. When one realizes the great amount of work and endeavor expended in collecting and packing these articles, it is surely a matter for whole-hearted congratulation. That these gifts of clothing were most deeply appreciated is freshly proven every day when the mail is received at the Women's Institute Relief Depot.

WORK ACCOMPLISHED BY THE LOCAL INSTITUTES

With the cessation of war work in 1919, the local Women's Institutes did not permit their activities to lessen, but utilized their war work experience to more successfully carrying on home, community and provincial improvements.

Many types of work commanded the attention of local institutes, in fact each institute has a different story of usefulness. In all cases an endeavor was made to meet the need of the community. It would be impossible to enumerate here all the admirable accomplishments of the institutes; a few of them, however, I must notice.

BETTER SCHOOL MOVEMENT.

Especially remarkable was the work taken up in connection with the "Better School" movement. Dozens of local institutes elected educational committees to do work similar to that of the parents and teachers' associations. They realized that the fulfilment of all high ideals in education depends upon the personal interest and devotion, not only of the teachers, but of the majority of the individuals in the community. Splendid local propaganda work was accomplished. The work of the institutes was felt mainly in two instances, sanitation and hygiene, and aesthetic culture. The abstract was successfully converted into the concrete by equipping playgrounds, furnishing hot school lunch apparatus, and in many cases actually doing the work, cleaning the schools, supplying curtains, plants, pencil sharpeners, flag poles, organs, pianos, bubble fountains and good pictures.

Twenty-five institutes gave prizes to students for various types of merit. One institute completely furnished a domestic science kitchen, while another institute donated \$100.00 worth of books to the local school.

WOMEN'S INSTITUTE SCHOLARSHIP FUND.

An entirely new feature was introduced in last year's programme, and was taken up and made an accomplished fact by two institutes; this was the creation of a scholarship fund granted to a local girl to provide the opportunity of attending one of the agricultural schools in Alberta for a term of five months. Each institute taking this up raised \$200.00 for the purpose. A five day short course touching upon various branches of household economics was given at each centre. The scholarship was awarded to the student showing the most sincere interest in short course and obtaining highest examination marks.

WOMEN'S INSTITUTE HOUSEHOLD ECONOMICS SCHOLARSHIP SHORT COURSE PROGRAMME.

First Day

- (1) Food principles and their functions.
- (2) Care of kitchen stove.
- (3) Demonstration—Baking-powder Biscuits and variations.

Second Day

- (1) Foods—Vegetables, general composition, composition of typical vegetables, use and importance in diet.
- (2) Care of metals.
- (3) Demonstration—Methods of cooking vegetables.

Third Day

- (1) Foods—Milk, composition, necessary care of milk, economic value of milk as compared with other foods.
- (2) Care of woodwork.
- (3) Demonstration—Milk—Use of milk in cookery, in desserts, white sauces.

Fourth Day

- (1) Foods—Meat, general composition, use in dietary, economic value compared with food value.
- (2) Table setting and serving, informal dinner service.
- (3) Demonstration—Meats, methods of cooking.

Fifth Day

- (1) Foods—Eggs, composition of eggs, use in dietary, review of foods.
- (2) Quiz and general review.
- (3) Demonstration—Eggs, cookery uses, as a lightening agent, as the thickening agent and a meat substitute.

The results of the examinations were most gratifying. The only means of preparation the girls had was through the lessons with the aid of demonstrations and charts, and the reviewing of notes taken each day. The answers showed the thoroughness with which they grasped the ideas.

REST ROOMS AND COMMUNITY HOMES.

At the present time there are 38 Women's Institute Rest Rooms and Community Homes in Alberta; of this number approximately one-third of the institutes own their own building. The necessary funds have been secured by soliciting local firms and individuals, also by giving concerts, entertainments, etc. In a few instances the rest room property is worth from \$3,500 to \$6,000; however, the valuation of the usual rest room is from \$1,000 to \$2,000.

The majority of the women's institutes are rented buildings or rooms for their rest rooms. The yearly rental ranges from \$36.00 to \$300.00. The municipality in which the rest room is situated sometimes gives a grant, in one case the municipality pays the yearly rent account in full on the condition that the women's institute furnishes and cares for the rooms. A number of municipalities supply a room in the municipal hall to be used as a rest room; the institute usually takes the caretaking and supervising responsibility.

HORTICULTURAL FAIRS.

Horticultural Fairs have been held by a number of the institutes and the enterprise has met with much appreciation. The institutes which

took the work up in 1919 have decided to make the feature an annual institution.

MEMORIAL WAR WORK.

A number of the Women's Institute Community Homes have been built in memory of the boys from the district who have fallen in the great war. Memorial trees have been planted in many Alberta towns and villages through the efforts of the local institute.

Considerable philanthropic work has been done. One institute has raised \$1,400.00 to send a poor crippled child to Mayo Brothers for treatment.

LOCAL RELIEF.

All the relief work accomplished by the Women's Institutes does not appear in the women's institute relief depot report. Many institutes have carried on splendid local relief. A number of the institutes situated in or near drought areas have established weekly sewing classes. Many of the town institutes, both in Northern and Southern Alberta, are the only welfare associations in the district. The worth of local relief carried on by the women's institutes is incalculable.

WOMEN'S INSTITUTE GIRLS' CLUBS.

The Women's Institute Girls' Clubs provided for by an amendment to the Women's Institute Act at the 1919 session of the Alberta legislature, now number forty, with a membership of 840 girls. The work undertaken by these clubs varies according to the needs of the community. Many are interested in organized recreation, others in study along literary, dramatic and household economic lines. It will thus be seen the girls are having their minds filled with wholesome, inspiring and helpful activities. They are learning team work which cannot but develop in them a high state of community consciousness which will ultimately grow into national and world consciousness.

We would impress upon the men and women of Alberta a realization of the depth and breadth of the Girls' Club movement. The club can be a real vital force to the individual girl, to the community, the nation and society. It gives the community the opportunity to avail itself of the enthusiasm and idealism of the young girls in furthering its various interests. It teaches the girls to think in terms of community good where formerly they thought in terms of self. The future holds rich possibilities for the girls' clubs, and we see in them great potentialities for national service.

Respectfully submitted,

MARY McISAAC,

Superintendent.

REPORT OF THE CROP STATISTICIAN

SIR,—I beg to submit the following report on crop statistics for the year 1919.

A report of the crop statistician has usually been made up of: The monthly weather report taken from the Dominion Meteorological Returns for the year; the figures relating to precipitation and temperature at all points at which observations are taken by the Dominion Meteorological Service; a summary of area and yields of grain for a period of ten years; a report of yields by districts; a statement of homestead entries and immigration. In addition to this it has been deemed advisable to add a brief running report setting out the progress of crops in relation to weather conditions through the season.

The experience of the farmers in Alberta during the crop season of 1919 gives emphasis to the fact that there are certain things connected with the farmer's business, everywhere, that are outside the farmer's control. The principal factor of this sort is the weather, and during the past season the weather has not been favourable to the success of the farmer. During the past two years there has been considerable irregularity in moisture distribution and more especially in 1919. The two years of light precipitation together have intensified the farmer's troubles. This condition has extended to the province east of Alberta and has a rather distressing parallel on the opposite side of the world, namely, in Australia.

At the opening of the spring season conditions were not very good in the southern part of the province. There was very little reserve of moisture from the year 1918. In some places there was not enough moisture to make seeding advisable. Snow and rains in April, however, gave an impetus to operations. There was enough moisture secured in this way to make cultivation easy and to provide for the germinating of the grain. A rain early in May helped to start the crop successfully, but the supply was rather short west of the line between Foremost and Youngstown. At a later time there was sufficient moisture to make the crop start well over the whole of Southern Alberta. While the central part of the province was not short from the previous year, there was not as much moisture as usual at seeding time. In northern Alberta, that is, in the Peace River valley, the conditions were entirely favourable.

Following the appearance of the crop above ground and three or four weeks of satisfactory growth the crop in Southern Alberta was short of moisture during almost the rest of the growing season. There was no reserve in the ground except in the best summer-fallow land to keep the crop growing. The effects of the drought were intensified by heavy winds in June and July. Late rains during the harvest season brought on some of the crop for threshing, and most of it did not get past the feed stage. Considerable grazing of a soft sort was provided by the late rains and there was some long feed to cut. On the other hand there had not been any spring growth in prairie hay, which has always been a valuable

asset. There was no cured buffalo or bunch grass for the highly valuable winter feed that the southern stock-man depends on. In central Alberta the crops were light also. The cases where wheat passed twenty bushels were few and scattered and most of the crop in wheat ran from ten to eighteen. Oats were correspondingly light. The grain situation was not good and the feed situation not promising. In the Peace River country on the other hand there was plenty of feed and plenty of good grain. There was no sign of failure or light crop any place. This was the general feed and crop situation at the end of the harvest period.

Following this the question of winter feed was up. At the close of the year it looks as though the set backs of the summer were going to be intensified by the occurrence of more mistakes on the part of the weather man. In the second week of October snow-storms and low dips of temperature occurred in all parts of the province. This came in the beginning of the threshing period, only about twenty-five per cent. of the grain being threshed at the first heavy snow-fall. A good deal has been threshed since but the grain was rather soft and in a good many cases stooks were stuck to the ground, which caused another loss. Most of the unthreshed grain will be valuable for feed in any case but the early snow reduced the cash crop of the farmers. If the snow-storm and cold had not occurred the live stock would have subsisted outside on the late grown crop until the middle of December as it does in most years. The occurrence of this severe winter, however, made it necessary for the stock-man to start feeding at once and having started it is necessary to continue. Following the storm there was a good deal of warm weather but the outlook for stock was not very good. On the other hand the late harvest rains and snows have brought a supply of moisture from which the farmers have drawn considerable hope for next year's crop. There was not much fall plowing done as the early frost interfered with it, but if sufficient moisture has been secured the other factors in production do not appear to be relatively very important.

At the close of the year it appears, that, so far as conditions warrant a prophecy on a succeeding crop, the year 1919 touched the low spot of unfavourable conditions and that there is a sharp up-turn to favourable moisture conditions for the 1920 crop. Details from Dominion weather maps are given below.

MONTHLY WEATHER REPORT FOR 1919.

January

EDMONTON.—The month opened decidedly cold with heavy snow-fall and strong northwest wind, becoming milder on the 3rd and continuing so until the 30th, closing moderately cold. Snow on ground three inches, in drifts three feet; excellent sleighing everywhere. River ice sixteen inches thick, traffic on same quite safe.

CALGARY.—No snow on ground; exceptionally warm month; no zero weather; ice on river breaking up.

February

EDMONTON.—The month opened and closed decidedly cold; the intervening days were very mild; snowfall light; sunshine below average; sleigh-

ing good; four inches of snow on ground out of city, three feet in drifts: river ice nineteen inches thick, traffic on same perfectly safe.

CALGARY.—Seven inches of snow on ground; very cold the last week; rivers all frozen over.

MEDICINE HAT.—Some farmers a little short of fodder but on the whole fairly well supplied; many ranchers glad of recent snow as stock was suffering for want of water on some ranges; first good sleighing of winter last week in February.

March

EDMONTON.—March opened clear and decidedly cold with moderate winds from westerly direction; occasional light snow from 10th to 19th; rain at close of month and becoming milder. Farming activities not commenced; ice cutting finished and traffic stopped on river on the 15th; ice fifteen inches thick; ground bare of snow.

CALGARY.—Cold first part of month and warm the latter part.

MEDICINE HAT.—No loss in stock reported; mild winter with little snow saved much fodder; range stock doing well.

April

EDMONTON.—April has been a very fine mild month, farming activities in full swing; excellent report from surrounding districts. Wheat sown west and southeast of the city on 15th; sufficient moisture in the ground. River ice moved out on the 12th. Strong winds, chiefly west northwest during greater part of month.

CALGARY.—Mostly all wheat seeding done; ground in good condition.

MEDICINE HAT.—Seeding in full swing; land in splendid condition; stock pasturing out, no losses reported; farmers optimistic and putting in large acreage.

May

LETHBRIDGE.—Rainfall for May one inch less than normal. Crops in need of moisture. Rain of 0.8 inch during last few days improved crop prospects.

EDMONTON.—May opened cloudy with heavy snow on the 2nd and 3rd, which precipitation was much appreciated; this was followed by strong winds and steady hot sunshine, drying out the ground. Rain and snow of last few days again provided ample moisture and prospects for splendid crops very promising; seeding still proceeding east and south-east of city. Cutworms are beginning to work in surrounding districts; river rising but normal; month closing cool; 277 hours of sunshine.

CALGARY.—All grain is sown; moderate rainfall.

MEDICINE HAT. Seeding nearly completed, acreage about same as last year; good feed for stock on prairie; average sunshine for the month nine hours per day.

OLDS. The total precipitation for May was 1.73 inches, mostly during the early part of the month. On May 2nd and 3rd a very heavy snow storm occurred. The weather from the 15th to the end of the month was extremely windy and crops suffered from drought, and drifting on light soils, also from cutworms. The last night of the month brought a frost of six degrees which injured some crops quite seriously; crops

all seeded and where not injured show fairly well. The hay is likely to be short.

VERMILION.—Precipitation 0.92 inches; sunshine 175 hours. Heavy wind prevailed during greater portion of month; crops backward and cut off in many places; conditions extremely bad until rain on the 30th gave temporary relief; slight damage by frost on the 31st.

June

EDMONTON.—June weather was very fine and warm with intermittent thunder and lightning, light showers during the early days and closing with very welcome rain and lower temperature. Plenty of moisture in surrounding districts; all crops in splendid condition; wheat two feet high; all reports very favorable. Precipitation was much below normal. Bright sunshine, 308 hours, which is above average. River high with mean temperature of 65 degrees for the month.

OLDS.—Only 0.96 inch of rain in June, of which 0.51 inch fell in the last twenty-four hours. The hay crops are almost a complete failure. Early sown grain is going to be very short, until the 30th it was showing red as result of drought. The late sown grain is very patchy and also short owing to drought together with cut-worms.

VERMILION.—The weather of June was very dry with extremely hot winds; crops suffering; prospects are for not more than fifty per cent. of average crop; hay and pasture scarce.

CALGARY.—Crops are burning up for want of rain; some districts in the south will not have any hay; conditions fair in the north.

MEDICINE HAT.—Crop conditions poor; farmers not hopeful of a fair crop; good feed for stock on prairie; 331 hours of bright sunshine.

LETHBRIDGE.—Crop outlook in Southern Alberta is very poor, in many parts grain is too far gone to recover. High temperature and hot winds with only 0.56 inch of rain at Lethbridge in June makes even winter feed situation for livestock uncertain, though immediate rains would produce considerable grain in some localities.

July

EDMONTON.—July opened clear and cool with light frost reported on south side and west end of the city on low lying ground. Crops in surrounding districts are very favorable; it is expected that cutting will commence within next two weeks. Precipitation was below normal; a little more moisture would materially benefit heading out of grain. Stock in very good condition. Strong winds mainly from west and northwest; good average sunshine; month closing cloudy and warm; 283 hours of sunshine.

VERMILION.—Crops very poor, approximately 25 per cent. will be harvested; green feed improving and dry spell apparently broken; 272 hours of sunshine.

CALGARY.—Very little crop in Southern Alberta; hay shortage serious; starting to cut wheat in some places.

MEDICINE HAT.—Grain crops in most localities a failure; potatoes promise to be fair; farmers and stockmen anxious to procure winter feed for stock; 347 hours bright sunshine during the month, average 11.2 hours per day.

LETHBRIDGE.—Wheat cutting has begun although very little threshing will be done in Southern Alberta. The only encouraging feature in the general situation is the fact that recent general showers will bring on late oats and flax sufficiently to allow same to be cut for feed, thus alleviating the somewhat acute situation regarding livestock.

August

EDMONTON.—August opened warm and sultry with thunderstorms of short duration; light ground frosts on the 23rd; wheat in surrounding districts good; oats light; straw short. The month closed with cold east and northeast winds and steady rain. Sunshine 275 hours.

CALGARY.—Heavy rain during the first half of the month saved the feed situation and also improved the crops. To the northeast of Calgary the crops average 25 bushels to the acre; sloughs dry; ducks plentiful; garden truck doing well.

LETHBRIDGE.—While the rain in the early part of the month improved the summer pasture it has not greatly improved the livestock situation so far as winter feeding is concerned. Second cutting of alfalfa well advanced; wheat harvest in Southern Alberta completed and threshing started.

MEDICINE HAT.—Some crops better than expected. Many farmers planting fall rye and preparing the land for another crop. 292 hours of sunshine during the month.

September

EDMONTON.—September opened cold and cloudy with fine rain, strong wind, and light frost, becoming very warm later in the month; light snowfall and heavy frost toward the close not causing any damage in this or surrounding districts. Crop has turned out much better than expected, wheat yield 24 bushels to the acre, oats light; threshing in full swing.

CALGARY.—Exceptionally fine month, no frost until the 27th. Crop mostly all threshed.

LETHBRIDGE.—Fifty per cent. of threshing in Southern Alberta has been completed; recent rains have greatly improved fall pasture, also green feed on all stubble. Precipitation for the month 2.04 inches; first killing frost recorded on the 28th, not enough to damage grain intended for green feed.

MEDICINE HAT.—Many farmers are preparing land for next year's crop and putting up Russian thistles for hay; stock in fair condition; first killing frost on night of the 28th, thermometer registering 26 degrees.

October

EDMONTON.—The weather was cold and stormy with heavy snowfalls throughout. Heavy frost from the 8th doing tremendous damage to the potato crop. Continuous snowfall from the 19th to the 30th, stopping threshing and all other farming activities. Ice floes in river on the 23rd, packed on the 24th. Eighteen inches of snow on the ground, and low temperatures at the close of the month; bright sunshine 117 hours.

CALGARY.—First part of the month fair, latter part miserable, heavy snowfalls with temperatures below zero and heavy winds; small streams frozen over; geese flying south.

MEDICINE HAT.—Stock in fair condition; hay scarce; some potatoes frozen in ground.

November

EDMONTON.—The month opened with intermittent snowfalls and becoming cold and stormy; all farming activities closed down; stock under cover; shortage of feed in surrounding districts. River ice 12 inches thick, safe for foot traffic. Snow on ground 16 inches, in drifts 3 feet. On the 30th a temperature of 39 degrees below zero was recorded, the lowest for November in twenty-five years. Sunshine 85 hours.

MEDICINE HAT.—Farmers generally very short of stock feed; the mild spell about the middle of the month helped out materially. No scarcity of fuel reported.

December

EDMONTON.—Total hours of bright sunshine 74.1; snow on the ground 17 inches. The month opened cold; milder the 3rd to the 6th; cold spell the 7th to the 16th. Chinook and mild spell following to the 30th when the temperature again fell below zero; snow fell in middle and at the end of the month; forage conditions bad; some threshing done in milder weather; river opened in the middle about the 24th, remaining open on the 31st.

MEDICINE HAT.—The latter half of the month Chinook winds cleaned off the snow, allowing the pasturing of stock; cut hay very scarce; ice went out of the Saskatchewan River in most places but new ice forming.

PRECIPITATION AS TAKEN FROM THE METEOROLOGICAL REPORTS- 1919.

[illegible]

Didsbury	0.30	0.70	0.30	1.85	3.25	...	1.72	3.13	...	...	...	...	11.25
Empress .....	...	...	...	1.43	1.36	1.03	1.46	1.25	1.34	...	...	...	7.87
Harmattan	0.35	...	0.45	1.61	2.73	...	2.61	...	...	0.81	0.68	0.55	12.39
Hillsdown	0.20	0.55	0.97	1.86	3.27	0.62	0.95	1.44	1.18	1.08	1.75	0.30	14.17
Jenner	0.45	0.88	0.68	1.73	1.23	0.77	0.78	1.32	1.55	0.61	...	...	10.10
Lacombe (Exp. Farm) ..	0.21	0.82	0.80	2.30	3.34	1.03	2.29	1.64	2.33	0.64	1.18	0.31	16.89
Olds .....	...	0.43	0.05	...	1.71	0.96	1.36	4.43	1.43	0.96	1.28	...	12.61
Perbeck	0.15	0.35	0.35	2.04	4.21	1.39	1.17	2.93	4.15	0.30	1.10	0.10	18.24
Red Deer	0.28	0.40	0.50	2.65	2.07	0.84	1.09	1.22	1.96	0.53	1.53	0.33	13.40
Rosedale	0.05	0.41	...	2.63	2.67	0.69	...	1.46	4.03	...	...	...	11.94
Springdale	0.83	0.48	0.55	2.97	3.75	1.92	3.78	2.69	3.23	1.39	1.63	0.93	24.15
Stettler	0.10	...	0.03	2.05	3.28	0.38	0.75	1.18	4.10	0.30	0.55	...	12.72
The Bow River District													
Bassano	0.34	0.70	0.70	1.41	3.73	1.60	2.44	4.00	4.02	0.55	1.00	0.18	20.67
Brooks	0.38	0.70	1.25	2.27	...	0.31	1.63	1.92	1.80	0.75	...	...	11.01
Brooks (2)	0.25	0.70	0.65	...	...	...	...	...	...	...	1.25	0.08	2.93
Calgary	0.34	1.12	0.55	0.50	0.95	0.29	1.64	3.80	1.58	0.62	0.78	0.04	12.21
Card-ton .....	...	...	...	0.15	3.49	...	...	...	...	...	...	...	3.64
Clare-sholm	0.75	1.13	0.48	0.27	2.02	0.33	0.73	1.24	2.69	1.71	0.70	0.65	13.00
Dalencud .....	...	...	...	0.67	...	0.58	2.89	3.17	3.49	0.76	...	0.40	11.96
Expense Coulee	0.10	0.85	0.57	1.05	1.63	0.68	0.83	1.00	1.18	0.65	1.10	0.30	9.94
Foremost .....	...	...	...	...	1.72	1.23	...	...	2.33	...	...	...	5.28
Gem	0.51	0.61	0.93	1.69	2.54	0.62	1.19	1.55	1.92	0.62	1.70	0.05	13.92
Gleichen .....	...	0.75	0.81	2.06	0.29	0.70	1.71	1.88	2.07	0.92	1.30	0.23	12.72
High River	0.05	1.70	0.85	...	1.95	0.11	1.05	4.46	1.39	1.10	1.90	0.80	15.36
Lethbridge (Exp. Farm) ..	0.06	0.95	0.75	0.47	2.83	0.56	1.06	1.05	2.04	1.78	1.26	0.55	13.36
Lundbrook (Livingstone) ..	0.79	2.56	0.53	0.45	1.00	0.50	0.59	1.29	1.85	...	...	0.65	10.21
Mackled	0.26	1.80	0.20	1.37	1.37	0.41	1.15	1.31	2.26	1.59	1.84	0.30	12.39
Medicine Hat	0.02	0.35	0.55	1.07	1.11	0.81	0.99	0.06	1.12	0.32	1.15	0.11	7.66
Milk River .....	...	...	...	...	...	...	...	...	...	...	...	...	...
Okotoks	0.25	0.90	0.40	0.13	2.37	0.20	2.37	5.35	2.02	0.58	0.60	0.20	15.46
Pekisko	0.74	1.20	0.73	0.32	2.04	0.53	0.24	2.93	3.79	2.14	8.20	0.95	23.81
Pincher Creek	0.44	1.65	0.98	0.33	2.12	0.54	0.99	1.75	1.89	3.72	1.43	1.33	16.17
Ronolane .....	...	0.80	0.30	2.34	1.62	0.37	0.89	0.77	0.83	0.31	0.46	0.04	8.73
Strathmore	0.68	1.20	0.33	1.45	3.06	1.13	1.56	3.46	3.26	0.57	0.60	...	16.70
Suffield .....	...	0.10	0.30	0.81	...	0.23	1.91	1.14	1.34	0.32	0.45	0.38	6.98

PRECIPITATION — (Continued).

Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Sundial	...	...	...	...	...	...	...	...	...	...	...	...	...
Twin Lakes (Kimball)	0.60	2.60	1.00	1.00	3.67	0.49	0.20	0.17	1.36	2.90	1.60	1.10	16.69
Whitha	...	...	...	...	...	...	...	...	...	...	...	...	...
ROCKY MOUNTAINS													
Panff	2.07	0.85	1.84	0.76	1.32	1.02	1.31	2.25	0.62	0.62	1.19	0.83	14.68
Lake Louise	...	...	...	...	1.23	0.78	1.09	2.09	1.72	1.26	3.59	2.20	13.96
ATHABASCA RIVER													
Athabasca Landing	0.78	0.25	0.53	0.44	2.96	2.15	2.76	4.41	2.02	0.73	1.38	1.10	20.11
Athabasca	0.90	0.30	0.58	0.31	2.87	1.81	...	3.62	2.55	0.53	1.15	0.28	14.90
Edson	0.70	0.60	1.45	...	...	...	...	...	4.09	1.41	1.75	1.40	11.40
Entrance	...	0.30	1.55	0.84	...	0.60	1.59	0.96	3.71	2.45	1.50	0.75	14.25
Jasper	...	0.50	0.32	0.31	2.58	1.05	...	0.24	0.19	0.56	0.86	0.81	7.42
Meanook	0.82	0.47	0.85	0.51	3.00	2.08	2.42	4.63	2.63	1.35	1.27	1.28	21.31
Wabasca	...	...	1.00	...	2.21	2.53	...	3.94	...	...	1.60	...	11.28
PEACE RIVER													
Dunvegan	...	...	...	...	...	...	...	...	...	...	...	...	...
Fort Vermilion	0.15	0.23	0.10	1.04	1.17	5.55	1.92	2.79	1.08	1.36	0.53	0.18	16.10
Grande Prairie	0.65	0.70	1.95	1.02	1.04	2.48	2.22	2.14	1.78	2.18	2.34	1.78	20.28
Grouard	0.40	0.10	0.90	0.20	3.58	3.54	2.91	1.73	0.85	0.85	...	2.00	17.06
Peace River Crossing	0.55	0.10	0.30	...	3.10	2.24	2.39	2.88	0.67	0.71	0.40	0.95	14.29

MAXIMUM AND MINIMUM TEMPERATURES FOR METEOROLOGICAL STATIONS IN ALBERTA FOR 1919.

STATION		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
NORTH SASKATCHEWAN RIVER													
Argyle	(Maximum	42	44	43	77	89	98	96	96	79	71	50	49
	(Minimum	-17	-42	37	18	19	29	35	32	22	19	-39	-36
Calmar	(Maximum	51	44	57	76	86	86	88	84	75	70	54	51
	(Minimum	-16	-46	-41	-23	14	30	32	33	19	-23	-41	-37
Campsie	(Maximum	49	47	58	75	82		87	84	76	67	56	50
	(Minimum	31	52	46	19	13		30	28	11	-14	50	-47
Coronation	(Maximum			77									
	(Minimum			21									
Daysland	(Maximum	42	42	22	77	90	95	96	91	79	70	50	43
	(Minimum	-16	-37	-32	21	21	29	35	33	15	-15	-40	-35
Edmonton	(Maximum	47	43	52	72	88	89	87	87	76	67	57	55
	(Minimum	-15	-37	-32	22	19	30	37	35	20	15	-39	-32
Elk Point	(Maximum	46	37	56	82	92	95	100	87	77	66	50	47
	(Minimum	-23	-40	-32	14	16	20	37	31	21	-10	-34	-36
Halkirk (Emsburg)	(Maximum	41	43	46	75	87	94	92	91	74	68	45	40
	(Minimum	-12	-33	-28	24	22	28	35	35	22	-9	-26	-30
Hardisty	(Maximum												
	(Minimum												
Nordeg	(Maximum	47	46	59		76	87	88	84	72	67	53	50
	(Minimum	-17	-39	-46	11	12	14	22	23	3	-19	-31	-49
North Cooking Lake	(Maximum	46	42	47	75	85	89	88	86	75	66	53	
	(Minimum	-18	-35	-31	16	23	27	42	38	27	-5	-34	
Ranfurly (Wattefield)	(Maximum	44	36	43	80	90	98	100	94	82	70	49	48
	(Minimum	-24	-48	-44	15	22	24	37	36	17	-19	-41	43
Rocky Mountain House	(Maximum	52	48	53			91	90	91		71	57	
	(Minimum	-4	-41	-44			24	26	30		-15	-27	
Sedgewick	(Maximum	48	40	43	72	92		90	90	80	60	45	41
	(Minimum	20	40	38	20	22		40	34	22	-20	36	-35
Sion	(Maximum	48	42	60	72	78	79	88			68	48	47
	(Minimum	-12	-47	39	17	12	34	32			-15	-52	43

MAXIMUM AND MINIMUM TEMPERATURES FOR 1919—(Continued).

STATION		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Stry	Maximum	47	38	15	78	90	91	92	88	75	65	50	45
	Minimum	29	54	73	14	14	20	31	28	14	23	49	43
Vegreville	Maximum	..	..	..	..	..	..	97	88	80	..	..	..
	Minimum	..	..	..	..	..	..	34	32	22	..	..	..
Vermilion	Maximum	41	35	50	79	94	98	97	88	78	68	47	49
	Minimum	-20	-50	35	17	16	24	35	36	18	-18	-30	36
Wadena	Maximum	42	47	42	75	90	97	101	..	84	70	42	40
	Minimum	21	39	33	22	20	27	36	..	18	17	36	42
Wells-Kiwin	Maximum	55	55	55	78	87	..	90	87	82	70	65	46
	Minimum	0	-42	35	20	20	..	40	26	15	16	35	35
Youngstown	Maximum	..	..	..	74	90	..	100	94	86	..	..	..
	Minimum	..	..	..	17	21	..	38	32	21	..	..	..
THE RED DEER RIVER													
Aliv	Maximum	55	49	50	82	86	95	95	94	81	82	51	49
	Minimum	-7	-44	35	24	17	28	33	37	18	13	32	42
Alask	Maximum	45	47	43	73	92	97	101	88	80	72	48	43
	Minimum	22	-36	-25	22	26	33	39	34	23	-17	26	32
Berry Creek	Maximum	..	..	..	93	97	110	110	..	..	..	..	..
	Minimum	..	..	..	24	26	35	35	..	..	..	..	..
Della	Maximum	..	..	..	..	..	..	..	..	..	..	..	..
	Minimum	..	..	..	..	..	..	..	..	..	..	..	..
Didsbury	Maximum	56	56	56	76	86	..	94	92	..	..	..	..
	Minimum	2	-26	-30	20	22	..	36	44	..	..	..	..
Empress	Maximum	..	..	..	76	94	101	105	96	88	..	..	..
	Minimum	..	..	..	20	23	28	39	38	25	..	..	..
Harmattan	Maximum	54	..	59	75	84	..	93	..	75	73	58	54
	Minimum	0	..	32	17	16	..	29	..	14	-18	-38	-43
Hillsdown	Maximum	51	51	55	78	88	89	89	87	78	71	54	54
	Minimum	3	-36	-28	25	18	29	34	38	23	-96	-28	-32

Jenner	{ Maximum Minimum	54 -19	52 -31	48 -23	76 22	92 22	98 31	103 36	93 40	81 22	75 -13	59 -30	..
Lacombé (Exp. Farm)	{ Maximum Minimum	49 -5	52 -41	56 -38	77 21	89 12	91 28	93 30	92 32	79 17	73 -11	54 -35	50 -39
Olds	{ Maximum Minimum	..	..	55 -28	..	18 ..	84 29	95 38	87 35	75 18	70 -12	56 -29	..
Perbeck	{ Maximum Minimum	48 -5	49 -34	53 -30	80 22	87 21	92 29	97 38	97 39	75 19	72 -05	48 -24	45 -29
Red Deer	{ Maximum Minimum	51 ..	51 -40	56 -36	77 24	87 20	89 29	91 31	89 36	79 19	72 -11	56 -35	51 ..
Rosedale	{ Maximum Minimum	55 -6	58 -28	50 32	80 26	91 23	98 29	..	91 38	87 22	..	..	..
Springdale	{ Maximum Minimum	46 -13	46 -50	53 41	76 20	87 16	86 26	87 29	84 29	77 18	68 -20	55 -41	51 41
Stetther	{ Maximum Minimum	45 -16	42 -32	45 -30	70 22	79 28	91 28	90 34	85 37	75 20	66 -05	49 -40	..
THE BOW RIVER													
Bassano	{ Maximum Minimum	56 -7	59 -24	58 27	73 22	84 22	99 31	99 35	90 39	78 17	71 -7	56 -20	57 -28
Brooks	{ Maximum Minimum	54 -12	57 -25	50 -33	81 25	..	99 28	100 40	92 42	90 20	73 -12	..	51 -29
Brooks (2)	{ Maximum Minimum	..	..	..	76 23	89 23	94 30	99 35	88 42	85 21	72 -12	..	..
Calgary	{ Maximum Minimum	55 6	54 -23	58 -33	79 21	88 20	94 27	97 41	92 41	79 22	74 -7	61 -13	56 -32
Cardston	{ Maximum Minimum	..	..	..	72 20	88 20	94 31	97 39	93 40	82 23	..	..	..
Clareholm	{ Maximum Minimum	54 3	54 -33	59 -30	76 19	86 23	95 23	99 34	95 39	82 23	69 -9	57 -15	55 -43
Dalemead	{ Maximum Minimum	..	..	..	79 23	90 20	96 26	99 37	94 34	81 21	71 -15	57 -18	53 -34
Expanse Coulee	{ Maximum Minimum	58 -4	61 -39	60 20	79 21	93 22	99 28	105 37	98 39	85 20	79 -21	65 -32	60 -41
Foremost	{ Maximum Minimum	..	..	..	..	..	98 35	..	100 40	86 25	..	..	..
Gem	{ Maximum Minimum	49 -13	54 -30	37 -31	73 10	87 26	93 30	92 35	91 35	78 15	72 -12	54 -23	47 -35

MAXIMUM AND MINIMUM TEMPERATURES FOR 1919—(Continued).

STATION	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Glabden	(Maximum Minimum	54 3	53 28	79 23	88 20	95 27	100 35	88 41	75 18	71 11	51 -30	47 -35
High River	(Maximum Minimum	57 -5	57 26	78 20	89 18	96 31	97 32	80 30	77 86	70 -19	58 -25	54 -38
Lethbridge (Exp. Farm)	(Maximum Minimum	57 -5	60 26	62 20	89 18	96 31	98 36	96 38	86 26	73 15	61 -14	55 -38
Lundbreft	(Maximum Minimum	57 10	48 43	69 10	78 0	91 25	93 29	87 30	72 12	72 12	53 14	53 14
Macleod	(Maximum Minimum	54 -25	54 23	78 23	89 25	101 33	102 40	98 30	89 30	72 10	67 -12	56 -35
Medicine Hat	(Maximum Minimum	58 -15	56 25	80 23	96 27	103 33	103 47	95 41	90 26	78 6	59 -18	53 -36
Milk River	(Maximum Minimum	54 4	55 27	74 20	83 19	90 31	94 40	85 38	74 21	68 12	60 -13	53 -32
Okotoks	(Maximum Minimum	60 16	60 40	68 9	76 9	86 16	91 27	84 25	72 11	64 22	56 -22	55 -46
Peki-ko	(Maximum Minimum	50 5	48 25	57 33	71 22	81 30	93 39	91 38	74 23	67 12	56 -14	52 -33
Pincher Creek	(Maximum Minimum	55 -15	52 24	57 36	76 20	93 32	94 41	91 39	74 23	67 12	56 -18	52 -36
Ronolaur	(Maximum Minimum	53 -5	57 -34	70 23	86 18	93 30	95 35	85 40	73 22	70 -10	57 -26	51 -33
Strathmore	(Maximum Minimum	55 -9	55 -28	71 36	86 22	98 43	102 38	96 38	93 24	77 13	60 -28	52 -36
Sutcliffe	(Maximum Minimum	55 -9	55 -28	71 36	86 22	98 43	102 38	96 38	93 24	77 13	60 -28	52 -36
Sundial	(Maximum Minimum	50 6	62 -32	70 13	85 14	91 26	95 37	93 31	77 23	69 16	57 -15	52 -34
Twin Lakes (Kimball)	(Maximum Minimum	55 18	59 29	71 36	86 22	98 43	102 38	96 38	93 24	77 13	60 -28	52 -36
Whitla	(Maximum Minimum	55 18	59 29	71 36	86 22	98 43	102 38	96 38	93 24	77 13	60 -28	52 -36

ROCKY MOUNTAINS

Banff	{ Maximum Minimum	42 -15	39 -31	56 -10	68 17	80 18	89 26	92 32	84 21	72 13	65 -27	49 -41	46 -38
Lake Louise	{ Maximum Minimum	.. ..	.. ..	.. ..	.. ..	13 13	14 14	21 21	24 24	1 1	-12 -12	-34 -34	-52 -52

ATHABASCA RIVER

Athabasca Landing	{ Maximum Minimum	44 -25	40 -50	60 10	72 19	86 19	91 27	86 39	85 31	74 18	61 -7	50 48	44 48
Athabasca	{ Maximum Minimum	29 -49	52 -50	43 38	15 73	15 81	28 85	.. 97	31 88	17 82	-14 73	-50 -34	-42 38
Edson	{ Maximum Minimum	-7 -50	-46 -40	36 44	13 11	13 15	29 21	28 30	31 32	9 20	-14 -13	-34 -20	38 36
Entrance	{ Maximum Minimum	.. -11	43 -10	59 44	70 11	77 15	88 20	91 ..	87 31	74 10	71 -4	62 -20	64 47
Jasper	{ Maximum Minimum	.. ..	38 32	56 25	70 11	74 20	86 20	.. 85	88 83	73 75	69 65	55 51	47 44
Meanook	{ Maximum Minimum	16 ..	38 41	52 50	72 ..	85 20	90 27	44 44	40 ..	22 ..	-4 ..	28 ..	30 ..
Wabasca	{ Maximum Minimum	.. ..	41 40	50 30	.. ..	94 20	89 25	.. ..	.. ..	.. ..	.. ..	50 -38	....

PEACE RIVER

Dunvegan	{ Maximum Minimum	.. ..	.. 27	47 -49	70 10	76 13	89 20	89 34	83 28	.. 14	.. -22	.. 42	.. 49
Fort Vermilion	{ Maximum Minimum	-46 ..	-65 38	.. 47	.. 70	.. 75	.. 83	.. 86	.. 77	.. 75	.. 63	.. 47	.. 45
Grande Prairie	{ Maximum Minimum	14 44	-31 39	55 55	24 77	17 77	24 85	40 88	31 85	23 80	-10 66	-24 47	-35 45
Grouard	{ Maximum Minimum	20 48	-49 41	37 59	22 78	17 84	25 92	38 92	33 86	24 82	2 76	-37 52	-37 46
Peace River Crossing	{ Maximum Minimum	-20 ..	-46 ..	10 ..	18 ..	15 ..	25 ..	42 ..	37 ..	16 ..	-5 ..	-39 ..	35 ..

SUMMARY OF THE ACREAGE AND YIELDS OF THE LEADING GRAINS
DURING THE LAST TEN YEARS.

	Year	Crop Area in Acres	Total Yield in Bushels	Yield per Acre	Average Yield
Spring Wheat	1919	2,827,935	33,935,224	12.00	17.86
	1918	3,018,371	23,090,544	7.65	
	1917	2,622,853	51,805,839	19.00	
	1916	1,549,075	41,163,471	24.18	
	1915	1,637,122	58,830,704	35.93	
	1914	989,561	15,102,083	15.26	
	1913	1,043,114	20,360,104	19.51	
	1912	957,874	17,434,774	18.20	
	1911	757,493	15,730,238	20.75	
	1910	450,493	5,697,959	12.85	
Winter Wheat	1919	38,475	639,450	16.62	19.69
	1918	44,065	660,975	15.00	
	1917	51,704	1,023,173	20.00	
	1916	18,663	447,475	23.89	
	1915	31,954	1,257,985	39.37	
	1914	49,930	837,204	16.77	
	1913	83,719	1,250,129	14.93	
	1912	120,811	2,395,875	19.83	
	1911	182,671	4,336,749	23.74	
	1910	142,467	2,206,564	15.48	
Oats	1919	2,329,025	65,725,085	28.22	34.31
	1918	2,651,548	60,322,717	22.75	
	1917	2,667,291	85,726,170	32.14	
	1916	1,394,927	60,798,239	43.78	
	1915	1,570,596	90,582,694	57.66	
	1914	1,147,382	34,597,117	30.15	
	1913	1,221,450	44,078,325	36.09	
	1912	971,969	37,085,234	38.15	
	1911	669,827	27,604,993	41.21	
	1910	492,589	12,158,530	24.68	
Barley	1919	414,212	10,562,406	25.50	24.82
	1918	470,073	7,756,204	16.50	
	1917	462,726	9,984,789	22.56	
	1916	297,967	8,477,232	28.64	
	1915	374,062	12,761,187	34.11	
	1914	340,992	7,847,640	23.01	
	1913	333,462	8,645,812	25.92	
	1912	225,055	6,287,112	27.94	
	1911	103,302	3,037,584	29.41	
	1910	90,901	1,899,509	20.79	
Flax	1919	47,112	221,897	4.71	7.74
	1918	95,920	479,600	5.00	
	1917	139,527	777,690	5.60	
	1916	43,361	574,700	12.43	
	1915	41,243	569,762	13.57	
	1914	41,656	207,115	4.97	
	1913	96,445	799,653	8.29	
	1912	112,776	1,196,416	10.60	
	1911	16,549	153,908	9.30	
	1910	15,271	46,155	3.02	

SUMMARY OF THE ACREAGE AND YIELDS OF THE LEADING GRAINS
DURING THE LAST TEN YEARS.—(Continued).

	Year	Crop Area in Acres	Total Yield in Bushels	Yield per Acre	Average Yield
Rye	1919	83,032	1,173,256	14.1318.17
	1918	47,877	825,878	17.50	
	1917	29,997	764,828	26.00	
	1916	10,134	212,503	23.25	
	1915	12,067	291,399	24.14	
	1914	14,623	261,843	17.90	
	1913	17,452	370,661	21.24	
	1912	2,493	54,119	21.70	
	1911	2,190	38,722	17.68	
	1910	1,522	28,306	18.60	
Mixed Grains	1915	26,000	942,500	36.25	
	1918	27,989	139,945	5.00	
Hay	1919	433,296	476,626	1.10	Tons
	1918	492,522	492,522	1.00	Tons

	Total Crop Area.	Total Yield of Grain.
1919	5,765,791	113,199,818
1918	6,355,843	93,275,863
1917	5,974,098	150,082,489
1916	3,821,476	111,735,729
1915	3,668,238	164,332,483
1914	2,586,169	58,895,709
1913	2,799,267	75,575,682
1912	2,391,752	64,465,058
1911	1,732,648	50,907,531
1910	1,193,261	22,027,184

CROP STATISTICS

SPRING WHEAT

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
1	Medicine Hat	1918	219,507	73,401	2.99
		1919	262,400	110,970	2.36
2	Warner	1918	73,076	17,472	4.18
		1919	1,197,200	253,998	4.71
3	Cardston	1918	213,762	19,796	10.80
		1919	111,700	23,692	4.71
4	Pincher Creek	1918	43,008	6,302	6.82
		1919	31,160	5,856	5.32
5	Macleod	1918	380,439	34,066	11.16
		1919	45,920	8,631	5.32
6	Claresholm	1918	1,110,025	78,379	14.16
		1919	393,600	40,072	9.83
7	Nanton	1918	449,163	41,367	10.85
		1919	557,600	84,460	6.60
8	Little Bow	1918	1,381,282	141,462	9.76
		1919	385,400	92,475	4.17
9	Taber	1918	782,600	114,492	6.83
		1919	623,200	93,708	6.65
10	Redcliff	1918	227,363	71,235	3.19
		1919	485,800	123,300	3.93
11	Bow Valley	1918	532,394	60,918	8.73
		1919	1,836,800	129,465	14.18
12	Gleichen	1918	814,509	78,360	10.30
		1919	3,936,000	209,610	18.77
13	High River	1918	686,088	63,942	10.72
		1919	508,400	53,019	9.59
14	Okotoks	1918	396,100	36,102	10.96
		1919	100,860	11,837	8.52
15	Rocky Mountain	1918	10,120	2,370	4.26
		1919	4,100	764	5.36
16	Calgary	1918	36,750	3,399	10.81
		1919	185,320	14,796	12.52
17	Cochrane	1918	28,038	2,852	9.83
		1919	41,000	5,179	7.91
18	Didsbury	1918	306,030	33,338	9.18
		1919	1,820,400	69,665	26.13
19	Hand Hills	1918	1,064,515	201,550	5.28
		1919	4,346,000	295,920	14.69
20	Acadia	1918	719,455	133,418	5.39
		1919	1,361,200	246,600	5.52
21	Coronation	1918	260,370	99,030	2.63
		1919	1,831,880	183,717	9.97
22	Stettler	1918	883,780	108,410	8.15
		1919	2,460,000	104,805	23.47
23	Olds	1918	1,484,110	163,660	9.06
		1919	1,041,400	28,359	36.72
24	Innisfail	1918	125,484	8,526	14.71
		1919	152,520	4,315	35.34
25	Red Deer	1918	88,344	4,498	19.64
		1919	328,000	11,097	29.55
26	Lacombe	1918	272,310	14,881	18.29
		1919	680,600	22,440	30.33
27	Ponoka	1918	188,011	11,179	16.81
		1919	295,200	8,877	33.25
28	Wetaskiwin	1918	41,100	4,498	9.13
		1919	206,640	5,585	36.99
29	Camrose	1918	199,896	33,126	6.03
		1919	918,400	45,004	20.40

SPRING WHEAT.—(Continued).

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
30	Sedgewick	1918	177,118	37,336	4.74
		1919	1,623,600	131,931	12.30
31	Ribstone	1918	193,663	70,526	2.76
		1919	1,262,800	144,261	8.75
32	Wainwright	1918	97,226	26,438	3.67
		1919	442,800	57,951	7.64
33	Alexandra	1918	199,546	19,180	10.40
		1919	89,380	9,556	9.35
34	Vermilion	1918	91,764	16,838	5.44
		1919	173,810	22,810	7.62
35	Vegreville	1918	91,064	16,684	5.45
		1919	483,800	33,291	14.53
36	South Edmonton	1918	128,399	8,988	14.28
		1919	375,068	12,330	30.41
37	Leduc	1918	87,816	9,448	9.29
		1919	213,200	7,768	27.45
38	Stony Plain	1918	93,022	11,092	8.38
		1919	201,720	6,781	29.75
39	Edson	1918	228	40	5.70
		1919	19,352	1,332	14.53
40	Lac Ste. Anne	1918	39,568	3,398	11.64
		1919	34,112	3,699	9.22
41	Pembina	1918	103,684	9,790	10.59
		1919	173,840	7,028	24.73
42	St. Albert	1918	75,146	6,936	10.83
		1919	118,080	3,699	31.92
43	Sturgeon	1918	102,879	10,251	10.03
		1919	352,600	10,172	34.66
44	Victoria	1918	198,815	23,320	8.52
		1919	508,400	16,769	30.31
45	Whitford	1918	60,178	11,162	5.39
		1919	377,200	17,015	22.16
46	Beaver River	1918	132,470	16,020	8.26
		1919	70,520	3,748	18.81
47	St. Paul	1918	39,858	5,270	7.56
		1919	60,188	3,514	17.13
48	Clearwater	1918	5,685	415	13.70
		1919	6,018	167	36.03
49	Athabasca	1918	45,660	6,830	6.68
		1919	37,720	1,073	35.15
50	Grouard	1918	18,105	1,624	11.14
		1919	11,480	443	25.91
51	Peace River	1918	260,649	19,362	13.46
		1919	1,066,000	34,524	30.88
52	Lethbridge	1918	51,204	1,260	7.05
		1919	56,580	10,974	5.15
	Totals	1919	33,904,999	2,829,052	12.00

WINTER WHEAT

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
1	Medicine Hat ..	1918	6,255	1,055	5.91
		1919	.....	.....	.....
2	Warner	1918	11,700	1,300	9.00
		1919	120	24	5.00
3	Cardston	1918	18,405	1,425	12.91
		1919	4,911	325	15.11
4	Pincher Creek ...	1918	30,068	2,650	11.34
		1919	42,408	5,472	7.75
5	Macleod	1918	1,000	100	10.00
		1919	1,286	200	6.43
6	Claresholm	1918	4,500	500	9.00
		1919	82,080	4,560	18.00
7	Nanton	1918	2,100	160	13.12
		1919	43,320	2,280	19.00
8	Little Bow	1918	100	10	10.00
		1919	440	22	20.00
9	Taber	1918	500	50	10.00
		1919	819	46	18.00
10	Redcliff	1918	300	30	10.00
		1919	2,023	114	17.75
11	Bow Valley	1918	100	10	10.00
		1919	58,066	3,591	16.17
12	Gleichen	1918	4,130	425	9.72
		1919	19,380	1,140	17.00
13	High River	1918	460	20	23.00
		1919	1,995	114	17.50
14	Okotoks	1918	1,296	70	18.51
		1919	30,780	1,710	18.00
15	Rocky Mountain	1918	28,759	2,613	11.00
		1919	34,200	2,280	15.00
16	Calgary	1918	500	50	10.00
		1919	2,850	285	10.00
17	Cochrane	1918	750	100	7.50
		1919	1,224	102	12.00
18	Didsbury	1918	1,603	103	15.56
		1919	2,280	114	20.00
19	Hand Hills	1918	1,000	100	10.00
		1919	13,710	540	25.39
20	Acadia	1918	6,832	1,046	6.53
		1919	21,850	1,140	19.00
21	Coronation	1918	11,769	7,389	1.59
		1919	66,690	3,420	19.50
22	Stettler	1918	17,500	500	15.00
		1919	18,282	1,071	17.07
23	Olds	1918	9,580	918	10.43
		1919	22,127	1,140	19.41
24	Innisfail	1918	410	40	12.75
		1919	3,078	171	18.00
25	Red Deer	1918	960	80	12.00
		1919	5,557	285	19.50
26	Lacombe	1918	1,140	50	22.80
		1919	17,153	2,166	21.77
27	Ponoka	1918	770	150	5.13
		1919	6,840	342	20.00
28	Wetaskiwin	1918	1,000	100	10.00
		1919	5,415	285	19.00
29	Camrose	1918	530	100	5.30
		1919	8,798	399	22.05
30	Sedgewick	1918	6,520	510	12.79
		1919	8,476	473	17.92

WINTER WHEAT—(Continued)

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
31	Ribstone	1918	4,798	2,228	2.15
		1919	22,276	1,322	16.85
32	Wainwright	1918	1,000	100	10.00
		1919	1,995	114	17.50
33	Alexandra	1918	100	10	10.00
		1919	1,360	85	16.00
34	Vermilion	1918	1,000	100	10.00
		1919	3,078	171	18.00
35	Vegreville	1918	1,000	100	10.00
		1919	3,040	136	15.00
36	South Edmonton	1918	100	10	10.00
		1919	1,710	114	15.00
37	Leduc	1918	583	96	6.07
		1919	2,016	112	18.00
38	Stony Plain	1918	1,000	100	10.00
		1919	3,249	171	19.00
39	Edson	1918	.....	.....	.....
		1919	.....	.....	.....
40	Lac Ste. Anne	1918	1,408	87	16.16
		1919	2,919	114	25.60
41	Pembina	1918	1,500	100	15.00
		1919	3,420	171	20.00
42	St. Albert	1918	1,500	110	13.63
		1919	3,930	131	30.00
43	Sturgeon	1918	2,020	150	13.46
		1919	1,606	114	14.59
44	Victoria	1918	1,900	500	3.80
		1919	9,234	513	18.00
45	Whitford	1918	1,000	100	10.00
		1919	1,802	102	17.50
46	Beaver River	1918	500	50	10.00
		1919	2,972	171	17.38
47	St. Paul	1918	100	10	10.00
		1919	2,556	142	18.00
48	Clearwater	1918	.....	.....	.....
		1919	.....	.....	.....
49	Athabasca	1918	.....	.....	.....
		1919	3,180	233	13.65
50	Grouard	1918	.....	.....	.....
		1919	2,443	114	21.43
51	Peace River	1918	500	50	10.00
		1919	2,667	114	23.40
52	Lethbridge	1918	320	40	8.00
		1919	.....	.....	.....
	Totals	1919	630,582	37,953	16.62

OATS

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
1	Medicine Hat	1918	52,641	9,159	5.74
		1919	60,237	8,781	6.86
2	Warner	1918	24,110	4,300	5.61
		1919	4,492	1,872	2.40
3	Cardston	1918	258,800	19,410	10.33
		1919	29,461	1,702	17.31
4	Pincher Creek	1918	66,810	5,748	11.62
		1919	14,545	1,872	7.77
5	Macleod	1918	113,445	7,695	14.74
		1919	3,533	216	16.36
6	Claresholm	1918	589,710	37,010	15.93
		1919	17,858	1,525	11.71
7	Nanton	1918	271,182	16,833	16.11
		1919	43,842	3,744	11.71
8	Little Bow	1918	233,928	15,360	15.23
		1919	45,972	2,895	15.88
9	Taber	1918	381,370	26,010	14.66
		1919	125,170	6,755	15.88
10	Redcliff	1918	158,730	28,020	5.66
		1919	85,692	14,282	6.00
11	Bow Valley	1918	298,299	12,300	24.25
		1919	253,551	7,816	32.44
12	Gleichen	1918	1,038,194	53,177	19.33
		1919	2,705,377	101,325	26.70
13	High River	1918	1,146,826	50,548	19.26
		1919	272,883	20,721	13.17
14	Okotoks	1918	743,596	35,906	20.71
		1919	131,435	7,913	16.61
15	Rocky Mountain	1918	105,730	7,559	14.00
		1919	1,070	193	5.54
16	Calgary	1918	179,563	9,333	19.23
		1919	278,981	13,510	20.65
17	Cochrane	1918	567,975	23,529	24.13
		1919	136,117	7,430	18.32
18	Didsbury	1918	1,196,765	63,379	18.18
		1919	2,821,467	106,150	26.58
19	Hand Hills	1918	1,002,650	123,895	8.09
		1919	2,192,094	86,850	25.54
20	Acadia	1918	447,012	36,442	12.26
		1919	278,036	27,020	10.29
21	Coronation	1918	343,323	55,029	6.23
		1919	2,206,068	123,520	17.86
22	Stettler	1918	894,266	63,804	14.01
		1919	3,442,290	113,870	30.23
23	Olds	1918	820,106	42,502	19.29
		1919	1,797,216	57,900	31.04
24	Innisfail	1918	784,766	34,104	23.01
		1919	2,154,574	40,530	53.16
25	Red Deer	1918	623,614	21,388	29.15
		1919	1,671,225	42,460	39.36
26	Lacombe	1918	1,312,446	49,180	26.68
		1919	2,661,084	69,480	38.30
27	Ponoka	1918	770,955	29,532	26.11
		1919	1,933,629	34,700	55.66
28	Wetaskiwin	1918	580,347	31,056	18.68
		1919	2,219,963	50,180	44.24
29	Camrose	1918	1,797,614	108,692	16.53
		1919	6,461,987	220,020	29.37
30	Sedgewick	1918	1,264,544	78,666	16.07
		1919	2,754,689	135,100	20.39

OATS—(Continued).

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
31	Ribstone ..	1918	295,011	48,201	6.12
		1919	1,265,214	76,235	16.57
32	Wainwright ..	1918	228,992	30,460	7.50
		1919	830,575	55,005	15.10
33	Alexandra ..	1918	1,058,127	45,930	23.03
		1919	805,192	35,898	22.43
34	Vermilion	1918	665,790	41,190	16.16
		1919	754,518	42,846	17.61
35	Vegreville	1918	1,579,622	72,038	21.92
		1919	3,873,046	162,120	23.89
36	South Edmonton	1918	624,985	18,571	33.77
		1919	1,881,692	52,110	36.11
37	Leduc	1918	590,466	29,414	20.07
		1919	1,570,062	44,390	35.39
38	Stony Plain	1918	680,258	24,854	27.30
		1919	1,029,968	31,459	32.74
39	Edson	1918	12,400	700	17.28
		1919	53,710	2,065	26.01
40	Lac Ste. Anne	1918	610,734	22,084	27.65
		1919	963,147	30,880	31.19
41	Pembina	1918	842,402	31,934	26.44
		1919	1,403,168	44,390	31.61
42	St. Albert ..	1918	629,845	17,432	36.15
		1919	1,371,323	39,565	34.66
43	Sturgeon	1918	1,900,652	67,870	28.00
		1919	3,343,050	94,570	35.35
44	Victoria	1918	1,193,102	38,520	20.50
		1919	2,312,294	75,270	30.72
45	Whitford ..	1918	803,589	41,373	19.42
		1919	1,571,136	59,830	26.26
46	Beaver River	1918	737,100	37,225	19.80
		1919	600,863	27,792	21.62
47	St. Paul ..	1918	461,400	21,552	21.41
		1919	438,500	22,002	19.93
48	Clearwater	1918	89,630	3,710	24.15
		1919	20,787	650	31.98
49	Athabasca	1918	130,566	6,608	19.76
		1919	308,798	9,958	31.01
50	Grouard ..	1918	277,190	8,570	32.34
		1919	204,230	4,053	50.39
51	Peace River	1918	982,744	26,503	37.03
		1919	4,017,295	96,500	41.63
52	Lethbridge	1918	19,210	850	22.60
		1919	12,146	733	16.37
Totals		1919	65,434,252	2,318,792	28.22

BARLEY.

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
1	Medicine Hat	1918	3,212	700	4.58
		1919	4,250	548	7.76
2	Warner	1918	1,380	560	2.46
		1919	1,160	146	7.94
3	Cardston	1918	24,224	3,336	7.26
		1919	16,146	925	17.45
4	Pincher Creek	1918	20,408	1,760	11.59
		1919	1,325	287	4.62
5	Macleod	1918	6,408	640	10.01
		1919	2,760	243	11.36
6	Claresholm	1918	29,096	2,364	12.31
		1919	5,590	430	13.00
7	Nanton	1918	12,530	1,420	8.82
		1919	2,898	510	5.69
8	Little Bow	1918	16,940	1,260	13.44
		1919	4,968	680	7.31
9	Taber	1918	13,036	1,528	8.53
		1919	3,864	571	6.77
10	Redcliff	1918	3,560	1,504	2.36
		1919	2,881	746	3.86
11	Bow Valley	1918	21,652	1,372	15.81
		1919	89,148	2,235	39.88
12	Gleichen	1918	270,738	31,032	8.72
		1919	543,720	29,403	18.49
13	High River	1918	44,021	5,378	8.18
		1919	42,310	3,548	11.92
14	Okotoks	1918	169,924	14,792	11.48
		1919	38,618	2,970	13.00
15	Rocky Mountain	1918	5,796	420	13.80
		1919	.....	.....	.....
16	Calgary	1918	23,066	2,672	8.63
		1919	76,135	5,225	14.57
17	Cochrane	1918	192,056	12,836	14.96
		1919	55,435	4,739	11.69
18	Didsbury	1918	257,410	19,412	13.22
		1919	489,963	27,459	17.84
19	Hand Hills	1918	23,380	4,132	5.65
		1919	156,003	5,224	29.86
20	Acadia	1918	36,280	4,930	7.56
		1919	8,746	1,003	8.71
21	Coronation	1918	14,840	3,300	4.49
		1919	102,274	5,832	17.53
22	Stettler	1918	139,380	16,744	8.33
		1919	273,450	11,421	23.95
23	Olds	1918	100,012	6,786	14.73
		1919	249,095	8,748	28.47
24	Innisfail	1918	118,674	7,712	15.38
		1919	252,595	7,776	32.49
25	Red Deer	1918	64,620	2,954	21.87
		1919	296,421	8,383	35.03
26	Lacombe	1918	192,412	9,262	20.77
		1919	830,950	25,029	35.36
27	Ponoka	1918	142,569	7,791	17.88
		1919	417,555	11,543	36.17
28	Wetaskiwin	1918	107,444	8,440	12.73
		1919	547,343	14,459	37.85
29	Camrose	1918	78,730	7,698	10.22
		1919	600,825	25,272	24.08
30	Sedgewick	1918	88,560	9,960	8.90
		1919	207,930	12,757	16.30

BARLEY.—(Continued).

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
31	Ribstone	1918	11,020	3,055	3.61
		1919	61,788	5,467	11.31
32	Wainwright	1918	9,160	3,280	2.79
		1919	35,182	3,013	11.68
33	Alexandra	1918	57,121	3,013	18.96
		1919	123,390	10,630	11.60
34	Vermilion	1918	80,680	9,500	8.49
		1919	47,105	3,548	13.28
35	Vegreville	1918	98,997	7,329	13.50
		1919	321,131	15,552	20.65
36	South Edmonton	1918	139,324	5,687	22.73
		1919	681,458	23,085	29.52
37	Leduc	1918	80,521	7,725	13.80
		1919	392,060	11,907	32.93
38	Stony Plain	1918	286,962	16,306	17.59
		1919	708,423	25,515	27.77
39	Edson	1918	332	60	5.53
		1919	62,928	2,770	22.72
40	Lac Ste Anne	1918	82,362	4,398	18.72
		1919	154,339	5,832	26.47
41	Pembina	1918	120,260	8,740	13.76
		1919	232,723	8,262	28.16
42	St. Albert	1918	158,676	7,374	21.52
		1919	516,125	15,917	32.42
43	Sturgeon	1918	223,550	11,578	19.48
		1919	662,979	21,019	31.54
44	Victoria	1918	197,420	16,928	11.66
		1919	627,469	25,272	24.83
45	Whitford	1918	130,484	8,664	15.06
		1919	288,420	11,542	24.99
46	Beaver River	1918	17,224	1,392	12.34
		1919	42,838	2,017	21.23
47	St. Paul	1918	23,420	1,404	10.63
		1919	9,207	583	15.79
48	Clearwater	1918	3,896	244	15.97
		1919	8,609	243	35.43
49	Athabasca	1918	29,620	3,196	9.26
		1919	49,699	1,750	28.39
50	Grouard	1918	17,240	1,224	14.08
		1919	22,050	583	37.82
51	Peace River	1918	29,903	2,010	14.88
		1919	249,888	8,991	27.79
52	Lethbridge	1918	1,000	100	10.00
		1919	4,002	243	16.47
Totals		1919	10,562,442	414,098	25.50

RYE.

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
1	Medicine Hat	1918	8,255	4,315	1.91
		1919	19,190	1,389	13.81
2	Warner	1918	7,295	1,580	4.61
		1919	14,347	3,930	3.65
3	Cardston	1918	1,610	100	16.10
		1919	.....	.....	.....
4	Pincher Creek	1918	995	94	11.05
		1919	3,201	516	6.20
5	Macleod	1918	1,000	100	10.00
		1919	2,586	496	5.21
6	Claresholm	1918	850	125	6.80
		1919	7,797	873	8.93
7	Nanton	1918	8,796	310	28.37
		1919	31,032	1,925	16.12
8	Little Bow	1918	12,680	1,620	8.23
		1919	15,998	3,732	4.28
9	Taber	1918	594	278	2.13
		1919	43,743	8,932	4.89
10	Redcliff	1918	2,860	1,170	2.67
		1919	2,626	492	5.33
11	Bow Valley	1918	1,000	100	10.00
		1919	14,609	933	15.66
12	Gleichen	1918	8,370	918	9.12
		1919	54,525	4,843	11.26
13	High River	1918	9,750	942	10.35
		1919	39,587	5,161	7.67
14	Okotoks	1918	19,200	1,064	18.04
		1919	13,463	953	14.12
15	Rocky Mountain	1918	460	140	11.50
		1919	126	87	14.12
16	Calgary	1918	1,269	64	19.82
		1919	27,325	1,727	15.83
17	Cochrane	1918	13,486	792	17.02
		1919	96,232	9,528	10.09
18	Didsbury	1918	20,056	1,173	17.09
		1919	40,394	1,747	23.12
19	Head Hills	1918	3,657	900	4.06
		1919	9,393	493	19.05
20	Acadia	1918	2,416	678	3.56
		1919	24,538	1,628	15.07
21	Coronation	1918	2,838	750	3.79
		1919	5,030	516	9.75
22	Stettler	1918	4,380	910	4.81
		1919	44,016	2,144	20.53
23	Olds	1918	18,570	1,215	15.12
		1919	47,197	1,925	24.52
24	Innisfail	1918	4,226	262	16.13
		1919	42,127	1,322	31.96
25	Red Deer	1918	4,802	214	22.43
		1919	23,295	754	30.89
26	Lacombe	1918	26,036	1,370	19.00
		1919	75,366	2,580	29.21
27	Ponoka	1918	10,691	575	18.59
		1919	85,916	2,461	34.92
28	Wetaskiwin	1918	3,314	214	15.49
		1919	53,510	1,588	33.69
29	Camrose	1918	3,168	314	10.09
		1919	63,615	3,870	16.44
30	Sedgewick	1918	4,590	570	8.05
		1919	18,331	1,528	11.99

RYE.—(Continued).

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
31	Ribstone	1918	1,385	715	1.93
		1919	15,953	1,759	9.07
32	Wainwright	1918	2,050	640	3.20
		1919	31,214	4,009	7.79
33	Alexandra	1918	1,485	245	6.06
		1919	12,337	548	22.51
34	Vermilion	1918	1,265	160	7.90
		1919	3,030	397	7.63
35	Vegreville	1918	1,100	146	7.53
		1919	22,569	1,509	14.95
36	South Edmonton	1918	100	20	5.00
		1919	5,933	302	19.65
37	Leduc	1918	342	45	7.60
		1919	24,830	1,032	24.06
38	Stony Plain	1918	4,455	410	10.86
		1919	15,837	556	28.49
39	Edson	1918	.....	.....	.....
		1919	6,792	548	12.39
40	Lac. Ste. Anne	1918	4,270	375	11.38
		1919	10,721	508	21.10
41	Pembina	1918	3,320	310	10.71
		1919	17,316	722	23.98
42	St. Albert	1918	2,490	210	11.80
		1919	15,175	572	26.53
43	Sturgeon	1918	1,895	240	7.89
		1919	28,245	834	33.87
44	Victoria	1918	780	190	4.10
		1919	5,383	278	19.36
45	Whitford	1918	1,000	100	10.00
		1919	9,241	397	23.28
46	Beaver River	1918	160	20	8.00
		1919	3,899	198	19.69
47	St. Paul	1918	4,640	330	14.06
		1919	7,090	595	11.92
48	Clearwater	1918	1,440	90	16.00
		1919	.....	.....	.....
49	Athabasca	1918	7,974	429	18.59
		1919	1,455	105	13.85
50	Grouard	1918	1,000	100	10.00
		1919	12,544	337	37.22
51	Peace River	1918	690	60	11.50
		1919	8,635	226	38.20
52	Lethbridge	1918	926	60	15.40
		1919	.....	.....	.....
Totals		1919	1,183,863	83,829	14.13

FLAX

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
1	Medicine Hat	1918	15,510	12,430	1.22
		1919	5,108	2,952	1.73
2	Warner	1918	13,760	7,960	1.73
		1919	699	466	1.50
3	Cardston	1918	7,150	1,050	6.81
		1919	4,590	2,295	2.00
4	Pincher Creek	1918	700	140	5.00
		1919	765	155	4.92
5	Macleod	1918	700	140	5.00
		1919	918	187	4.90
6	Claresholm	1918	6,172	1,612	3.83
		1919	15,300	3,825	4.00
7	Nanton	1918	3,545	600	5.91
		1919	4,590	933	4.92
8	Little Bow	1918	11,170	6,950	1.61
		1919	1,330	605	2.20
9	Taber	1918	18,850	4,950	3.08
		1919	9,723	3,136	3.10
10	Redcliff	1918	14,189	9,891	1.43
		1919	19,253	6,731	2.86
11	Bow Valley	1918	14,920	4,910	3.03
		1919	5,618	611	9.18
12	Gleichen	1918	13,048	2,562	5.09
		1919	21,046	2,065	10.19
13	High River	1918	11,150	2,210	5.04
		1919	15,300	3,060	5.00
14	Okotoks	1918	3,960	868	4.56
		1919	6,120	1,236	4.95
15	Rocky Mountain	1918	350	70	5.00
		1919	612	124	4.93
16	Calgary	1918	1,008	525	1.92
		1919	599	122	4.89
17	Cochrane	1918	250	50	5.00
		1919	459	93	4.90
18	Didsbury	1918	700	140	5.00
		1919	1,253	179	7.00
19	Hand Hills	1918	15,920	5,510	2.88
		1919	13,023	2,142	6.08
20	Acadia	1918	16,247	3,716	4.37
		1919	42,075	7,650	5.50
21	Coronation	1918	4,130	2,506	1.65
		1919	5,069	803	6.31
22	Stettler	1918	2,439	517	4.71
		1919	4,573	780	5.86
23	Olds	1918	100	50	2.00
		1919	5,875	918	6.40
24	Innisfail	1918	700	140	5.00
		1919	1,530	312	4.90
25	Red Deer	1918	52	6	8.63
		1919	75	15	5.00
26	Lacombe	1918	1,610	170	9.47
		1919	1,530	309	4.95
27	Ponoka	1918	45	9	5.00
		1919	70	14	5.00
28	Wetaskiwin	1918	700	140	5.00
		1919	2,290	229	10.00
29	Camrose	1918	250	85	3.04
		1919	3,947	555	7.11
30	Sedgewick	1918	175	70	2.50
		1919	1,002	101	9.93

FLAX.—(Continued).

No.	Crop District	Year	Bushels	Acreage	Yield per Acre
31	Ribstone	1918	1,474	690	2.13
		1919	3,793	696	5.45
32	Wainwright	1918	260	148	1.75
		1919	5,239	826	6.34
33	Alexandra	1918	700	140	5.00
		1919	1,530	310	4.93
34	Vermilion	1918	392	90	4.31
		1919	765	156	4.90
35	Vegreville	1918	987	126	7.83
		1919	496	180	2.75
26	South Edmonton	1918	125	25	5.00
		1919	669	61	10.93
37	Leduc	1918	700	140	5.00
		1919	1,530	306	5.00
38	Stony Plain	1918	700	140	5.00
		1919	1,683	153	11.00
39	Edson	1918	.....	.....	.....
		1919	.....	.....	.....
40	Lac. Ste. Anne	1918	460	60	7.66
		1919	688	115	6.00
41	Pembina	1918	140	15	9.33
		1919	382	30	12.50
42	St. Albert	1918	25	5	5.00
		1919	153	17	9.00
43	Sturgeon	1918	1,160	140	8.28
		1919	650	149	4.35
44	Victoria	1918	500	100	5.00
		1919	612	124	4.92
45	Whitford	1918	50	10	5.00
		1919	152	38	4.00
46	Beaver River	1918	40	10	4.00
		1919	184	46	4.00
47	St. Paul	1918	100	20	5.00
		1919	153	31	4.95
48	Clearwater	1918	200	40	5.00
		1919	230	46	5.00
49	Athabasca	1918	700	140	5.00
		1919	1,647	183	9.00
50	Grouard	1918	135	25	5.29
		1919	248	31	8.00
51	Peace River	1918	1,513	159	9.51
		1919	5,113	535	9.55
52	Lethbridge	1918	1,680	378	4.44
		1919	1,928	535	3.60
	Totals	1919	222,192	47,171	4.71

STATEMENT OF LIVESTOCK IN THE PROVINCE IN 1919.

	Head.
Horses	800,380
Swine	445,858
Sheep	364,498
Dairy Cows	508,051
Calves	428,888
Steers	180,734
Other Cattle	428,097
Bulls	38,274
Total	1,584,044

IMMIGRATION.

The report of the Department of the Interior for the year ending 1919 shows that Alberta received 13,833 Americans and 5,867 British settlers in 1919, making a total of 19,700 as against 16,281 in 1918 and 12,418 in 1917.

J. McCAIG,
Chief Publicity Commissioner.

HOMESTEAD ENTRIES.

During the year 1919, 3,443 homesteads, 2,627 soldier grants and six purchased homesteads were made in Alberta as follows:

Land District—	Homesteads	Soldier Grants	Purchased Homesteads
Lethbridge and Medicine Hat	117	102	..
Calgary and Red Deer	264	283	6
Edmonton	1,436	1,119	..
Peace River	770	533	..
Grande Prairie and Spirit River	856	590	..

REPORT OF THE RECORDER OF BRANDS

SIR.—I have the honour to submit the following report on the work of this branch of your department for the year 1919:

During the year 2,079 horse and 3,165 cattle brands were allotted and recorded to their respective owners, while 552 transfers and 46 changes were duly registered. Certified extracts of brands numbered 20, while searches and strays numbered 2,105, being a total of 7,987 transactions.

Compared with the previous year (1918) these figures show a slight decrease in horse and cattle brands and the number of transfers, but changes, extracts, searches and strays show an increase. The total increase for the year being one of 729 transactions.

The following table shows the different transactions which have taken place since separate records for the provinces have been kept:

Year	Horse	Cattle	Trans.	Changes	Extracts Strays & Searches
1906	1361	1894	384	38	73
1907	1030	1230	430	28	73
1908	1103	1225	421	29	292
1909	1308	1326	430	33	783
1910	1891	1672	524	34	1218
1911	1538	1280	362	32	1408
1912	1545	1542	374	16	1655
1913	1471	2059	419	11	1795
1914	1964	2629	395	18	1932
1915	1350	1899	743	27	1372
1916	1503	2833	462	28	801
1917	1839	3370	531	33	673
1918	2161	3455	617	40	985
1919	2079	3165	572	46	2125
Average 14 years	1582	2113	476	29	1085

It will be noticed from the statement that both horse and cattle brands exceed the average of the past fourteen years by 497 and 1,052 respectively.

Applications for new brands fell off considerably during the summer months, no doubt caused by the severe drought and want of summer grazing, and in the southern part of the province especially, the request for cattle brands during the fall and winter has been extremely light.

Searches and strays, this season, are the largest number ever reported in any year. A very large majority of these notices have been received since the month of October. Feed and pasture being so scarce this season has, no doubt, prompted people to report them in the hope of seeing them removed from their immediate district so as to conserve, as much as possible, all the grazing and feed for their own stock.

The following statement shows the number of renewals and re-allotments of brands to old owners, issued since this was instituted in 1915:—

	1915	1916	1917	1918	1919
Brands renewed in 1915	7805				
Brands renewed in 1916		2869			
Brands re-allotted in 1916	510				
Brands renewed in 1917		519	4169		
Brands re-allotted in 1917	431	120			
Brands renewed in 1918			949	3981	
Brands re-allotted in 1918	247	95	199		
Brands renewed in 1919				1069	6808
Brands re-allotted in 1919	87	76	120	34	
Total number renewed and re-allotted . .	9080	3679	5437	5084	6808
Percentage of renewals	39%	51%	57%	64%	56%

The percentage of renewals this year is 56% which is the highest rate of renewal that has taken place since the system was introduced in 1915, and this rate will be considerably increased before the period expires. It will be noticed that in 1918 the percentage of renewals was 50%, but this was increased during the first three months of 1919 to 64% and I look for a similar increase in those of 1919.

During the past year we had not only to renew original brands granted for the first time in 1915, but also those brands which had been renewed for the first time in 1915. For the future this recurring periodical term of four years will always be a heavy year for renewals.

Section 4 of the Act provides that any owner who forfeits his right of ownership of brand, the same shall not be re-issued to any other person for a period of at least four years. This period was reached for the first time at the 1st of January, and in anticipation of this, I have already had more than one hundred claims lodged for consideration. Most of these are from old owners who are either beginning in the cattle business again or who have neglected to have their brands renewed within the period prescribed by the Act. A number of applicants are also members of the family or were part owners and who for various reasons could not have them legally transferred. The throwing open of these old brands will relieve the strain which has been felt in the office for the past five or six years, to provide suitable designs for brands.

A reference to the statement in the previous part of the report will show that of the brands which should have been renewed on or before the 31st of December, 1915, no fewer than 1,275 have been re-allotted during the years 1916-1919. This will leave about fourteen thousand (14,000) brands open for re-issue, and it may, therefore, not be necessary to call a meeting of the Brand Commissioners for some little time.

The number of documents received during the year was 17,931, while the number of documents despatched was 55,303, making a total of 73,234, an increase of 15,753.

Yours obediently,

JAS. WILSON,

Recorder of Brands.

REPORT OF CHIEF GAME AND FIRE GUARDIAN

SIR,—I have the honour to submit herewith my fourteenth annual report in connection with the enforcement of the Game Act and the Prairie Fires Ordinance for the year 1919:—

PROTECTION OF GAME.

I am very pleased to be in a position to state that from a financial standpoint the year 1919 was the second best since this branch of your Department was organized. The actual revenue to date from licenses, permits, etc., sold in 1919 is \$39,242.66, the expenditure \$26,685.21, surplus \$12,557.45. This will be increased, as a few of our game guardians have not yet made their returns. The total revenue will probably exceed \$40,000.

All beaver pelts taken under permits were sold by tender in July. The average price realized was \$20.00. Many of the skins were improperly handled, which reduced the average. If trappers will care for the skins in accordance with instructions forwarded them they will no doubt realize more for the skins than in the past. In many cases the owner of the farm on which the beaver were trapped and the trapper as well wished to secure the skins for their own use and were consequently given an opportunity of placing a tender on them. With one or two exceptions they failed to receive their skins as their tender was not high enough. In fact in the majority of cases the seventy-five per cent. of the proceeds forwarded them amounted to considerably more than their reserve bid.

GAME BIRDS.

The nesting season of 1919 for game birds was ideal, more especially for grouse and Hungarian partridge, there being no cold rains in the month of June. This is the season of the year that the young birds are the most tender and most susceptible to injury from cold wet weather. The drying up of the sloughs on account of lack of rains affected the supply of water fowl. To this also can be attributed to some extent the scarcity of muskrats.

BIG GAME.

It is impossible at this date to state how many big game animals were killed during the open season of 1919, as a large number of license holders have failed to return their licenses as required by the Game Act. These, no doubt, will keep coming in, and eventually a greater percentage of them will be recorded.

Below is a statement showing the number of big game animals killed each year from 1907 to 1918 inclusive:—

	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Antelope ..	49	45	89	126	101	105	119	..	..	..	..	..	..
Moose	14	37	86	184	305	425	865	1335	1116	849	1026	900	..
Caribou ....	..	..	5	8	30	40	56	78	34	28	43	45	..
Mtn. Sheep ..	..	..	40	54	49	90	65	78	110	83	57	76	..
Mtn. Goat ..	..	..	38	46	56	58	42	61	40	26	37	43	..
Elk .....	..	..	..	7	..	..	..	..	1	..	..	..	..
Deer	59	125	299	540	619	768	908	1388	692	560	705	828	..

FUR-BEARING ANIMALS.

Under the regulations relating to the trapping of beaver south of the 55th parallel, whereby the permittee is required to forward all pelts taken under his permit to this Department to be sold, seventy-five per cent. of the proceeds to be forwarded to him, and twenty-five per cent. to be retained by this Department to be deposited in general revenue, the result has netted the province \$6,381.23. From the sale of beaver pelts illegally taken which were confiscated to the Crown there was received \$1,861.00. There were 282 permits to trap beaver issued for which a fee of \$1.00 was collected.

An unusual scarcity of muskrates has seriously affected the trapping industry in the southern half of the province, and although there is a great scarcity in the northern half of the province, it is not so pronounced as in the south. The unusually high price for fur has offset this situation in the northern part of the province to a great extent, but it is important that some action should be taken to prevent the extermination of these animals, the fur of which is possibly the most staple in the fur trade. Muskrat pelts are used, after drying, for the manufacture of Hudson seal, and are also used for coat linings and for the manufacture of coats. The demand has greatly increased, hence the price, which at the present time is from \$3.50 to \$4.00. If this price were realized in normal times, i.e. when muskrates were plentiful, there would be far more realized from the sale of rat pelts in this province, than from the pelts of any other species of fur-bearing animal.

Beaver.—There were taken under permits issued for the trapping of beaver 1,126 skins, and as beaver are still doing more or less damage in the southern part of the province, it has been found necessary to again issue permits, which will exceed in number those issued in 1919.

BRANDING GAME HEADS.

Section 11 of the Act requiring the branding of game heads before buying or selling shows the following results:

	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
Mtn. Sheep	216	2	9	11	2	6	4	4	15	8	6	2	14
Mtn. Goat	62	..	1	1	2	2	2	2	..	..	..	..	1
Elk	41	3	4	2	2	1	..	..	1	3	..	..	..
Moose	39	29	33	32	40	40	48	42	30	22	16	19	14
Caribou ..	16	6	6	2	3	3	2	5	1	1	..	2	..
Deer	142	15	26	26	40	40	24	32	15	12	15	12	9
Antelope ..	95	5	..	3	3	3	3	10	..	..	..	6	..

LICENSES AND PERMITS.

For the big game hunter the weather during the open season, although somewhat severe, was very favourable as he had no trouble in

The following licenses were issued to Treaty Indians free of charge on the strength of a certificate from their agent, as provided for by Sec. 19c of the Game Act:

Resident Farmer's Big Game Licenses.....82.

Respectfully submitted,

BENJ. LAWTON,

Chief Game Guardian.

WOLF BOUNTY.

As in previous years bounty has been paid for the destruction of wolves, the result being that 78 adult timber wolves and 18 timber wolf pups were killed on which bounty amounting to \$1,068.00 was paid. Very few claims for payment of bounty for killing prairie wolves were made. This is no doubt due to the animals being scarcer than in former years, as well as to the extremely high price which is now paid for their pelts. Trappers and others refrain from killing the animals while the pelts are not prime, or not in a marketable condition. Six animals were killed on which bounty amounting to \$12.00 was claimed.

Respectfully submitted,

BENJ. LAWTON,

Chief Wolf Bounty Inspector.

PRAIRIE FIRES.

The spring of 1919 being extremely dry, following the dry season of 1918, left the wooded districts in such condition that fires did considerable damage. Of these fires the one that almost totally destroyed the town of Lac La Biche was the worst. Large areas of timber (to say nothing of other property, and the loss of lives) were destroyed in the district to the north-east of Edmonton, between Cold Lake and Lac La Biche.

Many of these fires could be prevented, if settlers were more careful in the handling of fire, which should be provided for by more stringent legislation.

In the months of July and August, extensive bush fires raged in the Foot Hills, all the way from the International boundary to the headwaters of the North Saskatchewan river. A considerable sum of money was paid by this Department for the remuneration of fire fighters in the district west of Calgary and Okotoks.

The convictions reported and the total penalties imposed for the years 1907 to 1919 are as follows:

Year	No. of Convictions Reported	Total	Average Fine
1907	33	\$ 741.00	\$22.45
1908	105	1,570.00	14.95
1909	94	1,796.00	19.10
1910	247	4,247.38	17.20
1911	33	565.00	18.25
1912	56	1,008.00	18.00
1913	48	948.75	20.52
1914	89	1,395.93	15.68
1915	39	681.16	17.47
1916	113	2,121.19	18.77
1917	35	888.00	25.37
1918	40	946.90	23.67
1919	35	958.50	24.55

Respectfully submitted,

BENJ. LAWTON,

Chief Fire Guardian.

REPORT OF THE ALBERTA NATURAL HISTORY SOCIETY

ENTOMOLOGICAL REPORT, 1919, BY F. C. WHITEHOUSE

Weather conditions during 1919 were similarly favourable for insect pests as in 1918 in that the month of June was virtually devoid of rain; and in this my sixth annual report the most serious crop losses for some years must be recorded.

FIELD CROPS.

Cutworms were reported as causing trouble in the Spring from all over the province, and much re-seeding had to be done. In the central section, Calgary to Edmonton, two species were chiefly responsible, of which the Red-backed was the worst offender. Mr. Strickland, of the Dominion Entomological branch, Lethbridge, came north to investigate, i.e. to determine the species at work, and advise respecting methods of control, poisoning, etc. In the southern portions of the province, however, farmers had to contend not only with the Red-backed cutworm and other well known offenders, but also an assortment of the new ones.

GARDEN PESTS

Cutworms.—The Red-backed cutworm (*Euxoa ochrogaster*) is reported above as being the chief offender in destroying field crops during 1919, and since it is the species particularly addicted to gardens it goes without saying that gardens suffered severely. As a matter of fact hundreds of farmers after sowing gardens a second and third time gave up in disgust and dispensed with gardens altogether. If dry seasons favourable to cutworms are to continue farmers might be well advised to delay seeding gardens until the ground can be first treated with poisoned bait, i.e. to kill off the cutworms in the soil as a preliminary measure.

Beet Webworm (*Loxostege sticticalis*).—This pest was mentioned in last year's report as causing damage to gardens in Alberta. During the past season it was even more troublesome. One case of total destruction close to Red Deer was reported to me, and in another I saw thousands of the caterpillars on a large patch of several acres of 'lamb's quarters' adjoining the garden. To permit such a patch of weeds near a garden was to invite trouble. This pest is a caterpillar about an inch in length, greenish in colour, with yellow stripes on the back and sides.

The Hop Flea beetle (*Psylliodes punctulata*).—In Red Deer this pest was in evidence on garden beets, and the leaves of young plants were badly eaten off in some cases. The beetle is bronze black in colour, and about one-twelfth of an inch in length. Where the insect is troublesome on hops the usual method of control is to place tarred paper or canvas beneath the vines and then brush the vines with a feather duster. The beetles jump and are caught on the tar. The same idea could be followed in gardens by placing sheets of 'tangle-foot' on two shingles close to the stems of the plants on either side of the row, and then tapping the plants.

TREES

The Forest Tent Caterpillar (*M. disstria*).—As stated in my report of last year, the Dominion Entomological Department has had the outbreak of this pest at Sylvan Lake under observation for the past two or three years. An attempt is now to be made to introduce a parasite from British Columbia—a tachina fly—and the first supply of the flies in the pupal stage were taken to the lake this fall by two officers of the Department. In the spring an officer will again visit the lake, and check the emergence of the adult flies, it being of course essential to know whether the imported parasite can survive the winter under natural conditions. Whereas some species of tachina flies lay their eggs on the caterpillars, and other species again deposit larvae within the caterpillar,

the particular variety being introduced at Sylvan Lake operates in yet a third manner; it lays its eggs on the foliage of the trees where the caterpillars are feeding, and the caterpillars in consuming the leaves take also the eggs of the death-dealing parasite. Almost needless to state, should the experiment prove successful, the new parasite will spread; and not only Sylvan Lake district, but all central Alberta where the pest occurs, will benefit.

Spruce mite.—This pest was mentioned in my report of last year as being in evidence in Red Deer both on transplanted spruce and also on the native spruce in the parks. Though the summer was dry and favourable to the mites, injury to transplanted spruce was much less apparent than in 1918; the pest, however, was again noticeable on the large native trees, and it appears to be fairly well established.

Bark beetles.—Specimens of white spruce from Red Deer district showing bark beetle injuries were forwarded to Mr. J. M. Swaine of the Dominion Entomological Department in the spring, and were identified by him as (*Ips hudsonicus*) and (*Ips perturbatus*), which species he stated are the common bark beetles in white spruce throughout the whole region of north and western Alberta. It is probably not generally known that according to competent authorities the annual loss caused by bark beetles and other pests in our forests is greater than that caused by fires,—truly, an appalling thing to consider.

I am able to add the following additional notes through the kindness of the Dominion Entomological Department:

Western Blister beetle (*Cantharis nuttalli* Say.)—This strikingly beautiful beetle, which is present in more or less noticeable numbers almost every year, was again destructive to the foliage of caraganas, English broad, and other beans. It is frequently referred to locally as "The Caragana Beetle."

Locusts.—In some localities, particularly in the south, these insects are very abundant. The *Pellucid Locust* (*Camnula pellucida* Scud.), and the *Lesser Migratory locust* (*Melanoplus atlanis* Riley,) were present in such large numbers that they constituted a serious menace to the crops. Other locusts which were present in unusual abundance were the *Two-striped* (*M. bivittatus* Say,) *Packard's* (*M. packardii* Scud) and *Carlin's locust* (*Circotettix carlinianus* Thom.)

Diamond-back moth (*Plutella maculipennis* Curt.)—In some sections this pest was very destructive to cabbages and cauliflowers. In the Edmonton district it was exceptionally injurious, its work being noted particularly where cauliflowers were grown.

Aspen Leafroller (*Cacoecia conflictana* Walk.)—Early in June nearly every geometrid were present in large numbers on a half mile strip of Manitoba maples at Lethbridge. By June 17th the trees were entirely defoliated, and the caterpillars were feeding on neighbouring elms and poplars. The destroyed leaves were replaced later in the season by a second growth of foliage. The female moth is wingless, and it resembles, superficially, a spider.

Aspen Leafroller (*Cacoecia conficiant* Walk.)—Early in June nearly every leaf of the aspens in various sections of the province, especially around Blackfalds, enclosed a larva of this moth. About a month later a very large flight of the adults was attracted by the city lights of Calgary, where they were mistaken for "cutworm moths."

Currant Span-worm (*Cymatophora ribearia* Fitch.)—The larva of this moth defoliated all varieties of cultivated and native currants at Coaldale and Lethbridge.

Sugar Beet Webworm (*Loxostege sticticalis* L.)—The moths of this well known pest were enormously abundant during 1919, and appeared in large numbers, and their presence in fields and gardens caused considerable anxiety among farmers. They do not, however, injure grain crops, but in the fields feed almost exclusively upon lamb's quarters and Russian thistle. When these are exhausted, they may feed to some extent on alfalfa or flax, though there is practically no garden grown vegetable or flower that will not be eaten down to the ground by a passing swarm of these larvae.

Cutworms.—Several species of these noctuid larvae were unusually abundant this year, and they destroyed hundreds of acres of crops in widely scattered sections of the province.

The Pale Western Cutworm (*Porosagrotis orthogonia*, Morr.) which is the most destructive species in the province, was particularly numerous in the area south of Calgary.

The Red-backed Cutworm (*Euxoa ochrogaster* Gn.) occurred in destructive numbers in many sections throughout the province.

The Black Army Cutworm (*Noctua fennica* Tausch) was found in large numbers travelling with *E. ochrogaster*, at Blackfalds.

A new cutworm (*Euxoa tristicula* Morr) was reported in the fall of 1918 from Stettler, Loughheed and Retlaw. The hibernating larvae were nearly all mature before the 1919 crops were above ground.

EXECUTIVE REPORT FOR 1919

In the Society's Report of a year ago mention was made of the anticipated release from military service of Mr. F. H. Wolley Dod, and his return to the province; and it is with deep regret that his death of enteric must now be recorded. The late Mr. Dod, for many years a rancher in the Midnapore district, was an old time member of the Society and the pioneer worker in Alberta in entomology. A copy of the obituary notice which appeared in *The Canadian Entomologist*, October issue, will be forwarded for publication with the Society's report.

In January last, at the suggestion of Mrs. Root, a meeting was held in the school at Wetaskiwin and papers were given by the following members: Mrs. W. A. Cassels, "Waterfowl;" Dr. H. George, "Carniverous mammals of Alberta;" and Mr. F. C. Whitehouse, "Fishes of Alberta" and "Faunal Zones." Interesting discussions followed the papers, and the meeting, due to Mrs. Root's enthusiastic management, was undoubtedly a success.

Our Society in March last published Mr. K. Bowman's "Annotated Check List of the Macrolepidoptera of Alberta." This list will prove most valuable to students of Lepidoptera, (i.e. butterflies and moths,) not only of today but for many years to come, as it is an epitome of all that has been accomplished in the Order in the province to the date of publication. Reports upon the list from outside sources have been most complimentary.

For the past seven years another member, Mr. F. S. Carr, of Edmonton, has been working upon a Check List of the Coleoptera (beetles) of the province. It is the aim of our Society to publish the list as soon as it is ready, for the Order is of the greatest economic importance and a wider knowledge concerning it is most desirable.

In the September issue of the *Canadian Field Naturalist* an article appeared by Mr. Whitehouse "Notes on some of the Fishes of Alberta and Adjacent Waters." In this article the province of Alberta is included in the range of three well known fishes, excluded in the Dominion Government Check List of 1913, viz.: Goldeyes, Pickerel and Perch; and general information is given concerning the range, habits, etc., of our western fresh-water fishes.

The Entomological Record for 1918 bears witness to the activities of our Edmonton members, the lists of new records of Lepidoptera by Messrs. Bowman and Mackie; and Coleoptera by Mr. Carr, being gratifyingly lengthy.

At the request of the Red Deer Horticultural Society prizes were offered by our Society for named collections of leaves of trees and shrubs. The classes did not fill, and but one prize was awarded.

In the spring the name of the publication *The Ottawa Naturalist* was changed to *The Canadian Field Naturalist*; and Natural History Societies throughout Canada were invited to affiliate. This offer our Society readily accepted as co-operation in work in Natural History is highly desirable. The publication, established thirty-two years ago, deals with all branches of Natural History, and has an editorial staff of the highest order. The names of officers and corresponding members of affiliated Societies appear in each number issued, and other privileges include the publication of reports of annual meetings, special papers, etc.

During the cutworm outbreak in the spring advice was gladly given by our members when requested by farmers, and articles upon the subject appeared in the local papers. Fuller information concerning the insect pests of 1919 is given, as in past years, in Mr. Whitehouse's Entomological Report.

NOTE.—Students of entomology within the province can obtain copies of the Society's publications upon application to the secretary, Red Deer, viz:

Mr. K. Bowman's "Annotated Check List of the Macrolepidoptera of Alberta" and Mr. F. C. Whitehouse's "Dragonflies (Odonata) of Alberta."

THE CANADIAN ENTOMOLOGIST, OCT. 1919.

OBITUARY.

F. H. WOLLEY DOD.

On the 24th July, of enteric, at 49 Hospital, Chanak, Frederic Hova Wolley Dod, of Midnapore, Alberta, Sec. Lieut., Yorkshire Light Infantry, attached Macedonian Labour Corps.

Naturalists are born, not made, and if ever there was an enthusiast—a zealous seeker of scientific truths, it was our good friend who is gone. But to F. H. Wolley Dod even his beloved study of entomology had to take second place in his thoughts after the outbreak of war. He must go, and serve' and handicaped by his years, and his unfitness as a fighting man, he finally overcame all obstacles; obtained a commission; and served as a lieutenant in a Labour Battalion in Macedonia.

His last letter to me was joyous in the Allied victory, and full of plans for the future. "He must set up his Macedonian material, do a little collecting in England for old times sake; and then for Canada, and a trip into the mountains for alpine stuff. Would I go with him?" Aye, gladly would I go!

Dod was the pioneer worker in Alberta on the Lepidoptera, with a special leaning to the Noctuidæ. For many years he contributed regularly to The Canadian Entomologist, the first of his long series of paper "Preliminary List of the Macro-lepidoptera of Alberta" appearing in June, 1901. Five or six years ago he again went through his list, publishing additions and corrections. He also published papers in The Entomological News.

His great trait was thoroughness; and a bookcase of his notes on the type specimens, made on the occasions of his periodical visits to South Kensington, etc., not to mention his fine private collection, bear witness to his diligence. In the end he would take nothing for granted; and *believe nothing* unless substantiated by proofs. Nor can he be blamed for his incredulity when his own side of the case was told, viz., the confusion and added difficulties of his work in the early days, due to the snap judgments and incorrect identifications of the specialists of that time. So thoroughness begat real knowledge, and in the end he enjoyed an international reputation as an authority, if not the greatest authority, on the North American Noctuidæ.

A member of a well-known English family, and of excellent education, he loved his Alberta ranch at Midnapore next only to the Empire, and the science to which he devoted his leisure hours for so many years.

As a scientist leaving an irreparable gap in the ranks, his death could be deplored, and as a friend I could find it in my heart to bitterly begrudge his loss. But neither of these would be worthy nor characteristic of the man—of the sacrifice he so gladly made, and the life he was so ready to give. He, I know, would have but one request to us all: "Continue the good work!"

F. C. W.

SECRETARY-TREASURER'S REPORT FOR THE YEAR ENDING NOVEMBER 30th, 1919.

The annual meeting of the Society for 1918, which should have been held as usual in the month of November, had of necessity to be postponed on account of the influenza epidemic, it was finally held on Friday, Dec. 27th of that year, in the Public Library, Red Deer.

At this meeting the following officers were appointed for the year 1919:

Hon. President.—The Hon. Duncan Marshall.

1st Hon. Vice-President.—Mr. J. J. Gaetz, M.P.P.

2nd Hon. Vice-President.—Mr. H. A. Craig.

President.—Mr. F. C. Whitehouse.

1st Vice-President.—Mrs. W. A. Cassels.

2nd Vice-President.—Dr. Henry George.

Secretary-Treasurer.—Miss Fyson.

Directors.—Mrs. George, Mr. E. Wilton, Mrs. Pamey, Mr. K. Bowman, Mrs. Root, Mr. F. S. Carr, Miss Cole, Mr. D. Mackie, Miss Goudie.

At the evening meeting, the executive report for the year was read by Mrs. Cassels, and the Entomological report dealing with insect pests, etc., by Mr. Whitehouse.

This was followed by a very interesting paper on Mammals of Alberta by Dr. George, which was illustrated by many specimens from Dr. George's collection.

Mr. Whitehouse gave a very interesting paper on Faunal Zones which also was illustrated by maps and by specimens of insects belonging to the different Alberta zones.

The meeting was very well attended and real interest was shown by the audience.

During the year 1919, eight monthly meetings took place with an average attendance of nine members.

There were not many set papers or lectures, the meetings being used more for the informal discussion of various natural history subjects. The lectures given were as follows:

Feb. 21st.—Notes of a survey tour down the Peace River and through the Peace Delta in 1916, by Mr. H. C. Snell.

Mar. 28th.—Demonstration of the use of the Balopticon by means of specimens from his collection of butterflies and dragonflies, by Mr. F. C. Whitehouse.

Sept. 26.—Some account of various kinds of mushrooms hitherto considered unsafe for food, by Mrs. Powell.

A Field Day was held on June 25th, an expedition to the Tamarack Swamp west of Red Deer, which was much enjoyed by those members who were able to be present.

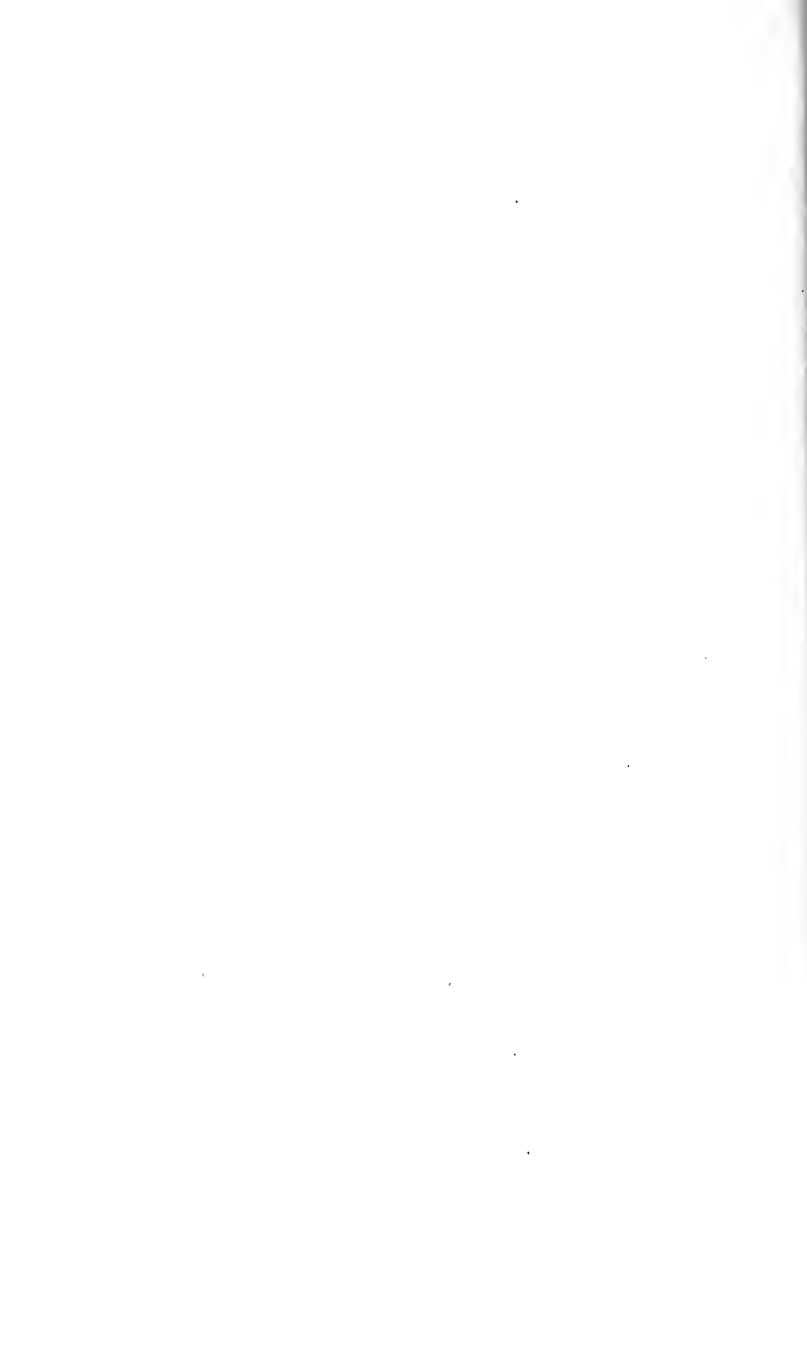
The monthly meetings were suspended during July and August as in 1918.

New members who have joined during the year are: Mr. and Mrs. J. J. Gaetz; Miss Bentley, of Lethbridge; Mr. Thos. Baird, of High River; Mr. and Mrs. Parker; Mrs. Powell; Mr. W. F. Harris.

FINANCIAL REPORT

RECEIPTS:	EXPENDITURE:
1918, Dec.1, Balance in Hand \$104.91	Printing, etc. \$ 10.75
30th Govt. Grant for 1918. 100.00	Railway fares 7.20
Member's Fees 6.50	Livery 4.00
Subs. to "Ottawa Naturalist" 4.00	Secretary's salary 20.00
	Aff. Fee "Ottawa Nat." .. 5.00
	Esdale Press 68.00
	Rubber stamp ..... .75
	Prize at Horticul. Show .. 1.50
	Stamps, note-book 2.10
	Cash in Hand .... .15
	Balance in Bank 95.96
<hr/> \$215.41 <hr/>	<hr/> \$215.41 <hr/>

Audited Nov. 27th, 1919, by S. Pameley.



*APPENDIX TO THE REPORT OF
THE LIVE STOCK COMMISSIONER*

HORSE AND CATTLE SHIPMENTS.

Shipping Point	Inspector	HORSES			CATTLE							
		Local	Export	Total	Male	Female	Calves	Yr-lings	Mature	Local	Export	Total
Acme	W. M. Hotzenpillar	415	107	522	2,041	1,927	478	285	3,205	3,787	181	3,968
Airdrie	L. Farr	408	85	493	1,392	2,114	648	342	2,516	3,371	135	3,506
Alderson	G. M. Thompson	70	36	105	155	162	14	34	269	247	70	317
Allison	C. A. Hogan	...	...	...	155	136	70	16	205	273	18	291
Amisk	P. W. Harrison	...	...	...	344	343	12	69	606	270	417	687
Ardenode	A. Jensen	80	...	80	173	173	...	14	332	346	...	346
Arday	T. J. Hampton	...	...	...	54	70	1	2	121	95	29	124
Athabasca	A. Archambault	27	2	29	111	76	1	26	160	181	6	187
Athabasca	George Delvin	...	...	...	92	26	2	8	108	118	...	118
Athe	E. Hay	146	5	151	367	425	93	1	698	364	428	792
Alix	H. G. Finch	99	10	109	754	609	123	141	1,099	1,211	152	1,363
Ankerton	H. J. Brown	6	15	21	222	235	157	56	244	391	66	457
Aldersyde	W. B. Way	89	71	160	291	336	21	133	473	627	...	627
Bruce	R. H. Summers	55	1	56	1,197	985	170	44	1,968	1,809	373	2,182
Bashaw	J. S. Windsor	247	54	301	1,153	1,243	249	178	1,969	702	1,694	2,396
Bassano	W. J. Bogan	537	177	714	1,029	1,184	69	92	2,052	1,995	218	2,213
Bulllocksville	C. H. Bucknell	25	...	25	28	23	...	...	51	51	...	51
Benalto	W. A. McKee	3	...	3	536	611	52	190	905	1,082	65	1,147
Bindloss	G. E. Chudleigh	...	4	4	337	474	203	13	595	207	604	811
Bittern Lake	O. H. Toreson	...	...	...	276	212	83	42	363	488	...	488
Blackie	T. Rockafellow	25	...	25	83	50	21	1	111	133	...	133
Blackfalds	J. Capron	46	24	70	82	102	4	...	180	184	...	184
Bon Accord	H. A. Whittaker	...	...	...	21	8	...	...	29	29	...	29
Botha	D. O. Kierbow	59	...	59	452	436	37	79	772	630	258	888
Bowell	J. D. Links	106	...	106	48	63	6	...	105	41	70	111
Bowden	R. McClue	140	...	140	423	576	59	180	760	973	26	999
Brocket	R. M. McLaughlin	287	29	316	1,538	1,080	304	98	2,216	1,445	1,173	2,618
Brooks	N. Stafford	302	199	501	4,175	1,240	91	103	5,221	3,754	1,661	5,415
Beiseker	F. Lomont	196	...	196	249	493	23	13	706	668	74	742
Blackfoot	W. F. Truscott	...	...	...	557	536	87	93	913	503	590	1,093
Bow Island	J. Martin	...	22	22	54	48	2	3	97	99	3	102
Bawlf	K. O. Eggen	2	...	2	487	462	120	176	653	882	67	949
Brant	C. D. Holmes	10	12	22	211	218	91	133	205	429	...	429

	J. McCarthy	61	34	99	422	349	20	771	180	611	791
Uadogan	H. C. McMullen	6,974	3,411	10,385	286	616	101	746	876	26	902
Calgary	M. Sessmith	2,848	980	3,828	65,998	65,893	12,916	1,360	47,174	84,717	131,891
Calgary	C. S. Bailey	490	26	516	1,946	1,839	298	464	3,103	702	3,805
Camrose	F. Teskey	598	43	641	1,161	1,025	346	43	2,151	35	2,186
Camrose	R. C. Howat				20	13		33	33		33
Carvel	J. C. Lanetot	130	49	179	517	685	252	88	1,136	66	1,202
Carstairs	L. Beaton	1,495	26	1,521	7,903	6,511	1,466	30	12,918	8,520	14,414
Carvel	F. C. Alcock	215	6	221	984	996	242	325	1,413	34	1,980
Champion	A. E. Keith	52	4	56	812	740	94	36	1,422	836	1,552
Chauvin	W. J. Stromquist		6	6	252	146	33	9	356	398	
Cherhill	A. E. Morfitt	9		9	841	813	278	61	1,315	1,009	1,454
Clive	D. Clark	84	39	123	169	179	56	35	257	347	348
Cluny	G. Morfimer	792	194	986	3,765	4,468	1,219	264	6,750	6,345	1,888
Cochrane	H. W. Howlett	27		27	171	195	95	7	264	176	366
Compoer	J. Plante	27	2	29		20		1	20	21	21
Coleman	Norman Jack	2	1	3	79	61	10	30	100	138	2
Colinton	W. Wilse	64	20	84	434	213	10	25	309	338	647
Consort	E. J. Gibson	431	34	465	2,339	2,066	325	351	3,729	2,803	1,602
Coronation	F. DePersier	21	10	31	422	472	98	19	777	894	894
Craigville	A. W. Gordon	985	142	1,127	2,337	2,786	911	205	4,007	4,377	5,123
Crossfield	J. M. Salisbury	63	15	78	330	328	23	101	534	658	658
Clyde	G. B. Triplett	636	112	748	916	726	33	158	1,451	1,642	1,642
Cardston	J. Workman	354	26	380	5,726	5,671	1,655	327	9,415	7,511	3,886
Clareholm	Dr. E. Baker	47	46	93	248	235	102	56	325	459	483
Cereal	G. Young	263	23	286	349	186	2	...	533	412	535
Cowley	E. Houcher	74	16	90	1,777	1,084	127	141	2,593	1,148	2,861
Czar	H. J. Duffy	62	14	76	1,247	697	16	68	1,860	1,944	1,944
Carstairs	E. LaBrie	73	63	136	1,152	1,258	370	146	1,894	2,073	337
Cowley	A. J. Verburg	182	88	270	193	220	3	...	410	393	20
Coutts	W. J. Goldsworthy		8	8	96	44		...	140	140	140
Clairmont	G. H. Rice				153	82	17	...	218	235	235
Chipman	A. C. Cameron	6		6	9	25		13	34		34
Clover Bar	A. B. Smith				14	25		39	39		39
Darwell	J. Berry	71	50	121	1,490	1,200	241	341	2,108	2,271	2,690
Daysland	T. Dalzell	32	7	39	198	262	121	32	307	460	460
DeWinton	W. F. Sick	1,145	64	1,209	3,018	3,630	480	1,228	4,940	6,256	6,648
Didsbury	W. R. Porter			84	79	63	7	11	124	142	142

HORSE AND CATTLE SHIPMENTS. (Continued.)

	Inspector	HORSES			CATTLE							
		Local	Export	Total	Male	Female	Calves	Yearlings	Mature	Local	Export	Total
Donald	A. W. Vorse	155	2	157	1,242	1,098	247	236	1,857	1,050	1,280	2,330
Dunbar	P. Fanks	6	...	6	63	38	1	...	100	101	...	101
Dunsmore, Jr.	H. N. Caven	454	872	1,326	1,020	1,245	180	100	1,985	1,261	1,004	2,265
Duloy	F. P. Snookell	46	...	46	255	263	61	11	443	518	...	518
Dubin	J. P. McBeath	308	36	344	959	1,183	158	183	1,801	2,142	...	2,142
Duville	F. C. Conkett	...	...	...	103	53	3	2	151	156	...	156
Ducess	C. J. Christiansen	172	...	...	260	364	83	15	526	378	46	624
Duvalle	D. C. Clausen	11	...	11	226	196	17	24	381	375	47	422
Dalborg	H. Kibbe	65	52	117	30	31	...	4	57	61	...	61
Edgerton	A. Lawrence	63	...	63	1,519	1,479	259	218	2,521	1,395	1,403	2,998
Edmonton	W. A. Flack	911	255	1,146	3,303	1,527	179	153	4,698	2,894	2,136	5,030
Edmonton	C. Logan	3,849	489	4,338	27,800	21,879	2,450	548	46,681	24,002	25,677	49,679
Egremont	E. Tomlinson	6	...	6	368	1,315	189	156	1,338	1,619	34	1,679
Elhura	J. A. Soucy	70	...	70	95	33	...	...	128	128	...	128
Empress	A. Hogg	46	71	117	1,028	857	...	129	1,756	1,737	148	1,885
Erskine	H. H. Hall	14	...	14	423	936	15	21	1,323	39	1,320	1,359
Etikoom	A. G. McNiven	357	26	383	187	287	216	33	925	358	116	474
Euclid	W. Thiel	35	...	35	2,015	1,813	750	65	3,043	3,814	44	3,858
Ferintosh	J. Tomkins	82	3	85	19	4	...	...	23	23	...	23
Fleet	W. J. McIntyre	...	17	17	601	592	64	137	992	1,024	169	1,193
Forestburg	D. D. Frederickson	140	9	149	64	71	14	...	121	130	5	135
Fort Saskatchewan	J. S. Auserman	70	28	98	936	1,043	74	394	1,511	1,679	300	1,979
Fabyan	A. Schmidt	...	2	2	881	585	73	25	1,368	1,446	20	1,466
Gadsby	A. D. Dietrich	46	71	117	13	62	10	...	65	70	5	75
Gainford	E. E. Hall	27	...	27	423	936	15	21	1,323	39	1,320	1,359
Galahad	B. Rylov	97	185	282	140	80	...	17	201	220	...	220
Garden Plain	M. Kuefler	7	...	7	1,447	946	325	138	1,930	2,385	8	2,393
Gleichen	H. McArthur	95	...	95	97	156	52	...	201	67	186	253
Granger St.	T. Henderson	97	...	97	1,562	1,163	104	160	2,461	1,277	1,448	2,725
Granger St.	J. McLeod	...	...	...	232	178	3	4	403	410	...	410
Grande Prairie	A. Cook	...	...	...	...	...	...	...	...	...	...	...
Gwynne	H. W. Smith	20	3	23	117	52	...	...	169	169	...	169
Halkirk	C. A. Bayo	2	...	2	28	27	1	7	47	55	...	55
	W. C. Fulton	125	13	138	1,638	1,442	293	53	2,734	2,200	880	3,080

Hanna	G. R. Cope	126	33	159	393	315	52	87	572	658	53	711
Hespero	G. H. McDonnell	98	...	98	438	381	36	...	671	798	21	813
Hobbs	J. Krammer	283	...	158	283	187	3	1	406	281	189	470
Hobbs	J. H. Dundas	...	...	...	923	1,093	792	25	1,199	1,059	957	2,016
Hughenden	T. A. Hall	31	39	70	1,327	781	101	67	1,940	1,611	1,611	2,108
Huxley	L. A. Gady	28	4	282	911	947	205	76	1,577	1,845	13	1,850
Ilich River	W. J. Irving	1,795	79	1,874	2,471	2,940	490	272	4,649	4,651	760	5,411
Ilay Lake	G. Edvall	13	...	13	264	219	13	6	402	483	...	483
Illa Prairie	C. S. Spaulding	12	...	12	62	15	3	6	68	77	...	77
Ilden	A. G. Brown	14	...	14	1,393	1,139	364	6	2,162	1,741	791	2,532
Ilden	S. W. Dickson	62	...	62	1,544	804	54	72	2,222	1,173	1,175	2,348
Ilder	B. J. Sunderman	97	...	97	548	698	235	77	934	1,246	...	1,246
Ildesleigh	C. W. Smiley	75	8	83	235	231	6	...	460	444	22	403
Innisfail	W. J. Pendergast	412	...	439	3,011	2,586	232	677	4,688	4,812	785	5,579
Innisfree	W. J. Reid	114	2	116	2,120	1,145	309	403	2,653	3,158	207	3,365
Ira	W. B. Peterson	78	...	78	1,513	905	109	173	2,136	555	1,863	2,418
Irvine	J. Pollock	221	203	424	1,013	1,087	125	240	1,735	1,842	258	2,100
Isly	J. T. Fyfe	132	91	223	1,909	1,362	59	186	3,026	1,301	1,970	3,271
Jarrow	A. Firkus	5	...	5	84	119	...	25	178	37	166	203
Jenour	W. Klinck	106	1	107	754	349	50	38	1,615	698	405	1,103
Keoma	G. Wilson	10	...	10	213	284	16	...	481	497	...	497
Kingsman	E. J. Regness	39	...	39	480	539	46	...	909	1,019	...	1,019
Kinsla	F. C. Williams	168	74	242	1,620	1,436	310	76	2,670	2,069	987	3,056
Kitscoty	E. R. H. Phillips	162	9	171	2,914	3,691	1,454	182	4,969	1,961	4,644	6,605
Kelsoy	C. D. Bower	210	8	218	433	347	143	58	579	770	10	780
Kirriemuir	E. Morris	...	...	...	13	15	...	...	28	...	28	28
Killam	Samuel L. Coy	25	9	34	476	433	48	61	800	703	206	909
Lamont	H. Harris	16	17	33	1,186	812	60	20	1,918	1,998	...	1,998
Ledur	W. J. Craigen	52	8	60	594	567	62	111	988	1,151	10	1,161
Lethbridge	E. J. English	1,270	308	1,578	2,682	3,650	575	235	5,322	5,507	825	6,332
Lomond	J. R. McKay	215	12	227	158	204	15	25	322	338	24	362
Lousana	H. G. Ancion	162	4	166	566	764	92	87	1,151	899	431	1,330
Langdon	W. Alcock	52	6	58	278	210	14	28	446	376	112	488
Lundbreck	A. McCulloch	361	108	469	3,138	4,280	1,379	472	5,567	5,292	2,126	7,418
Lo-alist	C. Brown	29	1	30	95	134	17	17	195	229	...	229
Lacombe	F. Perry	309	81	390	1,744	1,448	166	412	2,614	2,517	675	3,192
Lloydminster	H. Miller	104	20	124	2,720	1,810	188	55	4,287	1,004	3,526	4,530
Llaced	Dr. R. A. McAfee	878	691	1,569	3,928	3,598	1,349	597	5,580	1,345	181	7,522

HORSE AND CATTLE SHIPMENTS.—(Continued).

	Inspector	HORSES				CATTLE						
		Local	Export	Total	Male	Female	Calves	Yearlings	Mature	Local	Export	Total
M. T. A. L.	R. D. Ireland	13	30	43	2,421	1,986	527	325	3,555	1,727	2,680	4,407
M. T. A. L.	J. W. Smiley	92	28	120	236	259	6	24	465	466	29	495
Medicine Hat	J. H. G. Bray	584	690	1,274	649	777	132	136	1,158	874	552	1,426
Medicine Hat	H. P. Sperry	10	..	10	332	275	78	42	487	277	330	607
Medicine Hat	J. C. McNiven	..	..	..	117	62	..	..	179	..	179	179
Medicine Hat	Jas. Dowling	193	4	197	120	74	25	28	141	194	..	194
Medicine Hat	T. B. Smith	20	..	20	201	152	13	108	232	309	44	353
Mirror	C. Ray	20	..	20	204	298	175	38	289	277	225	502
Monitor	P. Cranmer	66	21	87	1,198	780	120	140	1,718	603	1,375	1,978
Morinville	P. Beaudry	15	..	15	202	117	20	19	280	319	..	319
Morinville	W. R. Stickney	95	64	159	392	300	44	128	520	692	..	692
Morinville	Val Mohr	9	..	9	1,638	856	58	39	2,397	2,494	..	2,494
Morinville	A. M. Valley	72	15	87	160	154	69	14	231	310	4	314
Morinville	P. Butlin	..	..	..	15	20	2	22	11	35	..	35
Morinville	A. P. Mitchell	24	..	24	269	132	5	101	295	401	..	401
Morinville	E. Hoffman	..	..	..	465	405	86	72	712	371	499	870
Morinville	B. Watkins	155	270	425	1,134	709	574	509	760	1,165	678	1,843
Morinville	E. C. Watts	5	35	40	88	71	2	1	156	159	..	159
Morinville	W. Robertson	1,082	67	1,149	2,672	3,341	735	572	4,706	4,896	1,117	6,013
Morinville	D. M. Boyd	55	42	97	414	566	107	2	871	841	139	980
Morinville	P. Spoor	15	..	15	..	..	..	..	..	..	..	..
Morinville	H. Shearer	64	4	68	85	194	6	84	189	279	..	279
Morinville	A. B. Carroll	43	2	45	378	207	2	..	583	357	228	585
Morinville	A. W. Fleming	..	..	..	482	349	163	140	528	787	44	831
Morinville	T. J. Meeklam	..	..	..	68	32	8	..	92	100	..	100
Morinville	P. Wacowich	..	..	..	268	82	1	..	349	350	..	350
Morinville	J. J. Holloway	61	281	345	721	555	82	79	1,115	1,166	110	1,276
Morinville	A. F. Jones	126	..	126	123	196	12	36	271	319	..	319
Morinville	N. Stafford	..	..	..	1,842	1,973	82	..	3,733	1,349	2,466	3,815
Morinville	F. D. Lausdale	11	13	24	597	219	3	..	781	607	209	816
Morinville	W. E. Turner	320	..	320	1,577	1,577	399	156	2,599	2,977	177	3,154
Morinville	T. Morrell	78	14	92	1,381	1,127	225	380	1,903	1,646	862	2,508
Morinville	G. R. Palfrey	87	..	87	254	299	54	23	476	553	..	553

Phillips	E. D. Conger	...	...	...	...	125	83	9	6	193	208	...	208
Ranfurly	J. McDonald	8	19	27	...	639	655	134	121	1,039	1,294	...	1,294
Redcliffe	J. Ellis	...	...	...	...	5	11	2	1	13	16	...	16
Redlands	B. Wishart	74	...	74	...	206	473	126	...	553	679	...	679
Retlaw	G. F. Podoll	304	37	341	...	445	535	116	151	733	973	...	973
Richdale	A. T. Penwarden	67	37	104	...	664	599	96	121	1,046	948	...	1,000
Rockyford	J. Bragg	137	...	137	...	169	380	109	1	789	746	...	1,263
Rosebud	J. Martin	80	...	80	...	164	117	5	2	274	281	...	899
Round Hill	W. Ross	14	...	14	...	313	365	49	97	532	617	...	281
Rumsey	G. Winkler	...	...	...	...	408	288	94	60	542	696	...	678
Ryley	P. P. Kynosess	142	...	142	...	919	589	98	63	1,347	1,338	...	696
Rowley	H. Swallow	36	...	36	...	88	135	9	5	209	223	...	1,508
Red Deer	W. G. Kidwell	163	42	205	...	161	348	47	115	347	498	...	223
Redwater	E. F. Brown	...	...	...	...	58	16	3	9	62	74	...	509
Ribstone	A. H. Irving	11	...	11	...	362	206	10	44	514	48	...	74
Radway Centre	A. Gould	...	...	...	...	235	69	...	1	303	304	...	568
Rosalind	W. Ryley	14	...	14	...	82	87	38	48	83	117	...	304
Ronalane	W. G. McGreer	...	...	...	...	64	57	4	1	116	121	...	121
Sangudo	W. H. Albers	9	...	9	...	220	100	3	7	310	320	...	320
Scollard	C. M. Thompson	...	...	...	...	75	89	147	...	17	164	...	164
Seven Persons	H. Bergeman	77	103	180	...	385	446	46	65	720	530	...	831
Spirit River	T. O. Nosting	...	...	...	...	48	23	...	1	70	27	...	71
Spring Coulee	P. F. Johnson	1	...	1	...	41	23	...	...	64	64	...	64
Spruce Grove	H. E. Kelly	283	...	283	...	1,063	1,462	608	213	1,704	2,304	...	2,525
Stettler	J. Conch	55	...	55	...	152	98	6	63	181	250	...	250
Stirling	F. R. Smith	272	138	410	...	1,288	1,597	413	273	2,199	2,130	...	2,885
Strathmore	M. L. Miller	114	167	281	...	1,390	1,757	107	73	2,967	2,972	...	3,147
Strone	F. O. Bearts	86	4	90	...	994	1,557	121	235	2,195	2,279	...	2,551
Strathcona	W. T. Phillips	55	33	88	...	726	732	102	272	1,084	1,442	...	1,458
Swan River	G. S. McDonald	328	8	336	...	373	528	39	121	741	698	...	901
Swallow	M. Whitecotton	81	4	85	...	55	20	1	1	74	71	...	75
Sylvan Lake	F. W. Currie	61	...	61	...	254	311	211	26	318	565	...	565
Stony Plain	W. C. Petro	16	...	16	...	163	92	11	8	236	222	...	235
Sedgewick	T. J. Hadley	12	3	15	...	384	149	16	31	486	533	...	533
Sangudo	H. Gascoyne	8	...	8	...	547	343	48	49	793	890	...	890
Smoky Lake	M. H. Dobson	61	...	61	...	146	157	2	26	275	303	...	303
St. Albert	J. Colabisk	...	...	...	...	76	23	...	...	99	99	...	99
	N. L. Hubardeau	46	...	46	...	12	3	1	...	14	15	...	15

HORSE AND CATTLE SHIPMENTS.—(Continued).

	Inspector	HORSES			CATTLE							
		Local	Export	Total	Male	Female	Calves	Yr'lings	Mature	Local	Export	Total
Suffield	M. A. Breen	100	9	109	463	245	...	...	708	301	407	708
Taber	E. B. Tainter	192	14	206	1,054	1,229	126	85	2,072	1,653	630	2,283
Tofield	N. S. Smith	243	6	249	1,454	1,227	239	248	2,194	2,571	110	2,681
Trochu	H. Durant	198	...	198	1,088	1,289	299	196	1,882	2,159	218	2,377
Thorhild	C. G. Jardy	...	...	...	159	71	2	10	218	230	...	230
Travers	T. W. Bannister	45	...	45	44	87	22	39	70	131	...	131
Vermilion	J. Cameron	133	91	224	5,725	3,687	627	589	8,196	2,822	6,590	9,412
Veteran	H. Bidleman	85	...	85	140	98	1	5	232	49	189	238
Veteran	A. D. Canfield	24	6	30	361	236	5	5	587	245	352	597
Vegreville	P. C. Litster	215	10	225	6,258	3,177	318	437	8,680	7,789	1,616	9,435
Wabamun	S. White	25	...	25	92	32	3	31	90	124	...	124
Wainwright	Brown & Hodgkiss	568	29	597	2,331	1,677	431	359	3,218	728	3,280	4,008
Walsh	J. W. Roberts	122	106	228	1,361	1,366	2	...	2,725	888	1,839	2,727
Warner	A. P. Murphy	85	9	94	1,984	5,189	173	2,690	4,310	4,383	2,790	7,173
Westlock	L. H. Campbell	2	...	2	60	34	...	...	94	94	...	94
Wetaskiwin	Dr. A. Johnson	445	143	588	2,078	2,176	213	370	3,671	3,467	787	4,254
Whitla	G. Murray	63	...	63	78	63	4	42	95	122	19	141
Total		45,545	13,095	58,640	281,454	261,963	49,861	27,297	466,259	329,998	213,419	543,417

*APPENDIX TO THE REPORT OF THE
SUPERINTENDENT OF FAIRS AND INSTITUTES*

No.	SOCIETY	Gov't grant paid in 1918	Total Receipts	Total Ex- penditure	Balance on Hand	Overdraft	Assets	Liabilities	Date of Exhibition	No. of en- tries
* 85	Winnifred									
* 86	Gadsby									
87	Lyon District	8473.17	\$920.84	\$640.62	\$289.22		\$381.72	836.60	Sept. 5	224
88	Spirit River	553.83	1,842.91	1,842.91		\$524.15	200.00	631.65	Sept. 16	238
* 89	Clinook	653.83	6,302.95	5,936.53	366.42		3,391.27	1,956.30	Aug. 7-8	736
* 90	Yonnestown									
* 91	Consort									
93	Rocky Mountain House ..	568.00	4,269.66	4,417.87		148.21	3,169.65	1,415.21	Sept. 22-23	1,062
* 95	Manxberries									
* 96	Westlock									
* 97	St. Paul	488.67	1,112.78	1,290.60		177.82	541.00	177.82	Sept. 20	649
* 99	Wheat-sheaf									
100	Highland	724.13	4,061.59	3,639.27	422.32		5,729.82	2,798.00	Aug. 11	1,228
101	Empress	324.93	460.51	443.95	16.56		128.56	125.00		
102	Hanna									
104	Baslaw & District	478.67	2,875.80	4,856.06		1,980.86	5,725.46	2,489.86	Sept. 12-13	447
105	Vulcan	442.13	687.64	141.20	546.44					
106	Berry Creek	747.67	8,582.12	8,572.84	9.28		3,962.60	1,762.25	Sept. 10	1,056
107	Waterhole	787.17	2,688.35	2,508.93	179.42		6,898.25	971.60	Sept. 11-12	439
108	Oyen	814.33	2,995.03	2,790.71	204.32		1,400.47	800.00	Aug. 4-5	1,072
* 109	Donalda									
* 111	Peace River									
* 112	Sudfield									
* 113	Etzikom									
* 114	Redlaw									
115	Bushy	432.87	2,278.22	1,828.60	449.62		482.12	975.00	Sept. 16	1,612
116	Bonnyville & Durlingville ..									
117	Sibbald	44.50	1,509.35	1,493.50	15.85		26.35	221.00	Aug. 2	614
118	Lomond	764.33	2,639.81	2,633.85	5.96		2,645.16	3,145.60	July 31	569
* 119	Richdale									
* 120	Lamont									
* 121	Big Valley									
123	Veteran	532.50	1,657.20	1,651.05	6.15		46.15	550.60	Aug. 19	1,085

[illegible]

EXHIBITION ASSOCIATIONS.

Year	Leithridge	Calgary	Edmonton	Athabasca	Camrose	June 28, July 5
200	5,768.23	178,897.50	176,678.34	22,19.16	55,040.78	3,144.25
202	13,000.00					
203	13,000.00					
204	683.07					
205	3,073.00					

*Returns not complete.

†No fair held.

No.	SOCIETY	Amount paid in prizes at Exhibition	Amount paid in prizes for Sports	Field Grain	Seed Fair	Poultry Show	Horticultural Show	Good Farms	Gov't grant paid in 1919
1	Cardston								
2	Deseret								
3	Dod-larry	\$1,097.65							\$726.77
4	Innisfaul	2,294.00	\$25.00		\$83.00				1,737.33
5	Lacombe	3,139.80	1,229.45	\$300.00	113.00				2,507.20
6	Red Deer	7,670.55	1,737.49						3,150.00
7	Macleod	1,666.50	588.00						1,253.00
8	Medicine Hat								
9	Olds	1,321.00			96.00				970.00
10	Pincher Creek								
11	Ponoka	1,477.60							1,125.07
12	Raymond	1,686.00	469.10						1,229.00
14	Okotoks	751.50							575.00
15	Vegreville								
16	Wetaskiwin	3,133.00	1,285.00	225.00					2,383.67
17	Leduc	1,781.65	460.00		50.00				1,374.77
18	Nanton								
19	Vermilion	7,916.79	290.00		60.00				3,210.00
20	High River	1,192.75	363.00						878.17
21	Priddis & Millarville	719.25							585.50
22	Viking and Birch Lake District								
23	Morinville	681.00							594.00
24	Manville								
25	Stettler District	2,704.50			50.00	\$212.50			2,215.50
26	Daysland	2,656.00	573.70		39.00				1,934.67
27	Clareholm District	1,602.25	572.00						1,218.17
28	Milnerton								
29	Irvine								
30	Taber								
31	Innisfree	2,511.95							1,824.63
32	Sedgewick	2,265.85	627.30	300.00	181.00				1,960.57
33	Alix	344.60							229.73

POULTRY ASSOCIATIONS

No.	SOCIETY	Gov't Grant 1918	Receipts	Expen- diture	Balance on hand	Over- draft	Assets	Liabilities	Date of Show	Gov't Grant 1919
793	Edmonton	\$1,239.17	\$4,384.49	\$4,384.49	\$		\$1,908.05	\$1,784.73	Dec. 3-5	\$ 1,248.74
794	Calgary	1,521.53	10,025.27	9,875.94	149.33		1,474.97	2,283.95	Nov. 25-28	1,755.84
*795	Lethbridge									
*797	Vulcan									
799-1	Medicine Hat	506.50	1,938.61	1,938.61	3.99		1,086.24	700.00	Dec. 16-19	605.27
799-3	Wetaskiwin	300.00	925.71	925.71			828.96	300.00	Dec. 10-12	300.00
799-4	Red Deer		458.00	423.60	34.40		34.40	160.00	Dec. 16-17	300.00

HORTICULTURAL ASSOCIATIONS

766	Edmonton	\$300.00	\$3,014.08	\$3,002.78	\$11.30	\$	\$496.45	\$ 45.00	Aug. 15-16	\$300.00
*767	Calgary									
768	Red Deer	300.00	487.00	701.04		214.44	230.94	240.00	Aug. 21	300.00
769	St. Albert	275.40	658.00	658.00				180.00	Aug. 27	274.00
770	Magrath	140.45								165.00
771	Taber	203.15								
772	Camrose		748.15	500.70	247.45		247.45		Sept. 30	300.00
774	Medicine Hat	300.00	1,192.79	1,192.79			64.10	60.00	Aug. 21	300.00
*775	Craigmyle									
777	Islay	39.50	246.76	259.20		12.44	5.50	12.44	Sept. 5	53.70
778	Neerlandia	107.00	212.86	189.95	22.91		22.91	182.50	Oct. 3	172.50
779	Bellevue	166.00	801.60	798.25	3.35		5.85		Sept. 1	300.00
*779-1	Kinsella									

*Returns not complete.

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